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# Studies on Privatizing Fannie Mae and Freddie Mac

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# STUDIES ON PRIVATIZING FANNIE MAE AND FREDDIE MAC

Prepared for

U.S. General Accounting Office  
U.S. Department of Housing and Urban Development  
U.S. Department of the Treasury  
U.S. Congressional Budget Office

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U.S. Department of Housing and Urban Development  
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May 1996

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## INTRODUCTION

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (Public Law 102–550, Section 1355) requires that the Comptroller General of the United States, the Secretary of Housing and Urban Development, the Secretary of the Treasury, and the Director of the Congressional Budget Office shall each conduct and submit to the Committee on Banking, Finance and Urban Affairs (now the Committee on Banking and Financial Services) of the House of Representatives and the Committee on Banking, Housing, and Urban Affairs of the Senate a study regarding the desirability and feasibility of repealing the federal charters of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), eliminating any federal sponsorship of the enterprises, and allowing the enterprises to continue to operate as fully private entities. The text of the congressional requirement is reproduced in full at the end of this introduction.

This volume contains five analytical studies that were prepared to inform the four agencies as to the best current thinking on issues surrounding the concept of full privatization, preparatory to drafting their Reports to Congress on privatization. This volume supplements the separate reports of the Comptroller General, the two Secretaries, and the Director, as published independently by each agency.

In addition to the five studies, the volume includes commentaries on the studies by academic experts and by Fannie Mae, and in several cases responses to the commentaries by the study authors. The commentaries were initially presented in seminars on drafts of the papers. Seminar participants included the authors, invited discussants, staff members from the four agencies and the Office of Federal Housing Enterprise Oversight, and representatives of Fannie Mae and Freddie Mac.

The plan for the studies and seminar series was formulated by an interagency working group. This group designed the materials used in recruitment of authors, directed the author selection process, monitored preparation of the studies, and organized the seminars. It consisted of William Kruvant, William Shear, Mitchell Rachlis, Fred Evans, and Paul Thompson from the U.S. General Accounting Office; Harold Bunce, John Gardner, and Stephanie Smith from the U.S. Department of Housing and Urban Development (HUD); Joan Affleck-Smith, Edward DeMarco, and Mario Ugoletti from the U.S. Department of the Treasury; and Robin Seiler and later Marvin Phaup from the Congressional Budget Office. The Congressional Budget Office funded the Stanton paper, and HUD funded the other four papers. John Gardner of HUD served as general editor for this volume.

The 1992 Act mandated that each agency's study examine the effects of privatization on several specific factors including (1) the requirements applicable to Fannie Mae and Freddie Mac under federal law and the costs to the enterprises; (2) the cost of capital to the enterprises; (3) housing affordability and availability and the cost of homeownership; (4) the level of secondary mortgage market competition subsequently available in the private sector; (5) whether increased amounts of capital would be necessary for the enterprises to continue operation; and (6) the second-

ary market for residential loans and the liquidity of such loans. The working group particularly sought to ensure that these topics were addressed in the studies.

Several of the authors had access to drafts of other papers in this collection as they wrote, and some of the papers make reference to these drafts. Editorial notes are provided [in brackets] which give the appropriate page references to the final texts, and in a few such cases the notes highlight relevant differences between the drafts and final texts of the cited papers. Similarly, the academic and Fannie Mae commentaries are based on the drafts of the papers that were circulated prior to the seminars. Again, bracketed notes give the relevant page references in this volume and sometimes note changes from the draft version of a paper.

Absence of substantial conflict of interest was a requirement for selection as an author or discussant. Some of the authors and discussants noted prior or current relationships with Fannie Mae or Freddie Mac, and these are disclosed at the beginning of each major section in this volume.

Freddie Mac, whose staff participated fully in the seminars, elected not to submit any written commentaries for this volume. Freddie Mac indicated:

While we appreciate the opportunity to submit commentary on the research studies, we believe that it would be more efficient and appropriate to provide our views after each of the agencies decides whether, or to what extent, to take the research studies into account in preparing its reports to Congress. Rather than expend the considerable resources necessary to provide a detailed commentary on research studies that may not be used by the agencies, Freddie Mac believes that we can be more helpful by providing comments on the agency reports themselves.

The working group is pleased at the high quality of the contributions to this volume and gratefully acknowledges the efforts of the authors and the seminar discussants, which included, in addition to those represented in this volume, Gillian Garcia, John Peterman, Robert Litan, and Robert Buckley. Thanks also are extended to Aspen Systems Corporation and its staff members Molly Wolfe and Sally Dorfmann, who facilitated the contracting process with several of the authors, and Anne Pike, who copy-edited the manuscripts.

### **Statutory Study Requirement**

(Excerpt from the Federal Housing Enterprises Financial Safety and Soundness Act of 1992, P.L. 102-550):

#### **SEC. 1355. STUDIES OF EFFECTS OF PRIVATIZATION OF FNMA AND FHLMC.**

(a) In General.-The Comptroller General of the United States, the Secretary of Housing and Urban Development, the Secretary of the Treasury, and the Director of the Congressional Budget Office shall each conduct and submit to the Committee on Banking, Finance and Urban Affairs of the House of Representatives and the Committee on Banking, Housing, and Urban Affairs of the Senate, not later than the expiration of the 2-year period beginning on



the date of the enactment of this Act, a study regarding the desirability and feasibility of repealing the Federal charters of the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation, eliminating any Federal sponsorship of the enterprises, and allowing the enterprises to continue to operate as fully private entities.

(b) Requirements.-Each study shall particularly examine the effects of such privatization on-

- (1) the requirements applicable to the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation under Federal law and the costs to the enterprises;
- (2) the cost of capital to the enterprises;
- (3) housing affordability and availability and the cost of homeownership;
- (4) the level of secondary mortgage market competition subsequently available in the private sector;
- (5) whether increased amounts of capital would be necessary for the enterprises to continue operation;
- (6) the secondary market for residential loans and the liquidity of such loans; and
- (7) any other factors that the Comptroller General, the Secretary of Housing and Urban Development, the Secretary of the Treasury, or the Director of the Congressional Budget Office deems appropriate to enable the Congress to evaluate the desirability and feasibility of privatization of the enterprises.

(c) Information.-The Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation shall provide full and prompt access to the Comptroller General, the Secretary of Housing and Urban Development, the Secretary of the Treasury, and the Director of the Congressional Budget Office to any books, records, and other information requested for the purposes of conducting the studies under this section.

(d) Views of the FNMA and FHLMC.-

(1) Consideration in studies.-In conducting the studies under this section, the Comptroller General, the Secretary of Housing and Urban Development, the Secretary of the Treasury, and the Director of the Congressional Budget Office shall each consider the views of the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation.

(2) Direct report.-The Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation may each report directly to the Committee on Banking, Finance and Urban Affairs of the House of Representatives and the Committee on Banking, Housing, and Urban Affairs of the Senate on its own analysis of the desirability and feasibility of repealing the Federal charters of the enterprises, eliminating any Federal sponsorship, and allowing the enterprises to continue to operate as fully private entities.



**RESTRUCTURING FANNIE MAE AND FREDDIE MAC:  
FRAMEWORK AND POLICY OPTIONS**

**Thomas H. Stanton**





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*Fannie Mae's review of this paper begins on page 48, followed by Mr. Stanton's Supplementary Analysis, beginning on page 74.*

*Thomas H. Stanton is an attorney-at-law in Washington, D.C. and a Fellow of the Center for the Study of American Government at Johns Hopkins University.*

*Mr. Stanton was employed in Fannie Mae's legal staff in the early 1980s and owns small amounts of stock in each GSE.*

*The Stanton paper was submitted on October 18, 1994 and presented in a seminar at the U.S. Congressional Budget Office on October 27, 1994. The Fannie Mae Review was submitted on August 4, 1995, and Mr. Stanton's Supplementary Analysis was submitted on October 10, 1995.*



## EXECUTIVE SUMMARY

In 1992 the Congress mandated studies of the desirability and feasibility of repealing the federal charters of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), eliminating any federal sponsorship of the enterprises, and allowing the enterprises to continue to operate as fully private entities. This paper is the first of several pieces of research that were commissioned to review aspects of those issues.

Corporate restructuring of two huge companies such as Fannie Mae and Freddie Mac is a massive and complex undertaking. This paper concludes that a well-conceived process can address the technical complexities of removing government-sponsored enterprise (GSE) status from Fannie Mae and Freddie Mac in a way that accomplishes the transformation efficiently and effectively. Far more important for a successful restructuring of the secondary mortgage market is a political consensus that such change is desirable. Then the technical solutions will follow.

The government provides distinctive financial advantages in support of the public purposes that the GSEs are chartered to serve. These public purposes are defined in the enabling legislation of each GSE in the form of limitations upon its permitted business activities. Thus, Fannie Mae and Freddie Mac are limited to serving the secondary market for residential mortgages of a size, type, and credit quality specified by law.

Any proposal to restructure Fannie Mae and Freddie Mac to remove government sponsorship from their activities must provide for some combination of efficient markets and government action to assure that homebuyers would be well served by a residential mortgage finance system that did not include the GSEs as a dominant form of government involvement.

If they seek to participate in the residential mortgage market, successor companies to Fannie Mae and Freddie Mac might take a variety of institutional forms. Management of the successor companies also would be free to leave the residential mortgage market to serve other markets. This is unlikely, however, especially in the early years after restructuring, because of the distinctive competence that these managers and their institutions have acquired in serving the residential mortgage market.

This paper presents five specific options for carrying out the restructuring process. Permutations of these options are also possible. Essentially, the process involves turning today's GSEs into liquidating entities while permitting new business activities to proceed through successor operating companies that are created without special federal statutory attributes (i.e., benefits or limitations). It is possible technically to insulate the process of liquidating the GSEs from the activities of new operating companies so that the latter can issue debt without any perception of implicit government backing.

Fannie Mae and Freddie Mac are owned by investor-shareholders. While the government has not guaranteed the value of shareholders' investments in the companies, it has made commitments

that have become the basis for investment by those private shareholders. The government has an obligation to live up to its commitments.

From the perspective of a private shareholder who has invested in equity stock of Fannie Mae or Freddie Mac, the desirability of restructuring can be expressed in a simple question: Will the value of the shareholder's investment rise or drop as a result?

The Student Loan Marketing Association (Sallie Mae) addresses this question in its current proposal to give up GSE status. Sallie Mae points to a "GSE lifecycle" and suggests that the company is now entering the final phase of that cycle. For Fannie Mae and Freddie Mac, the issue of lifecycle relates to the substantial improvements in the residential mortgage market since they were created. That market has evolved to a state of such efficiency that government support through the GSEs arguably might not yield the same benefits (or avoid the same costs) in the future as in the past.

Increased market efficiency may mean that the restrictions in the legal charters of Fannie Mae and Freddie Mac increasingly may impede rather than enhance the performance of the mortgage market. As in the case of Sallie Mae, if an enterprise suddenly finds itself nearing the end of its lifecycle, such developments could also translate, directly or indirectly, into reduced shareholder returns. Finally, policymakers may look to the history of other federally supported institutions to obtain a sense that some organizations that were truly beneficial at their inception can precipitate serious financial loss, both to their owners and to taxpayers, if they stay around too long.

If there is no political consensus regarding the desirability of removing GSE status from Fannie Mae and Freddie Mac in the near term, then policymakers may want to consider legislation that today establishes a framework for such action in the more distant future, say in 10 or 15 years. Such legislation could provide for a smooth transition that is intended to benefit the marketplace as well as today's two housing GSEs and their managers and shareholders.

## I. INTRODUCTION

In 1992 legislation, the Congress mandated studies of the desirability and feasibility of repealing the federal charters of Fannie Mae and Freddie Mac, eliminating any federal sponsorship of the enterprises, and allowing the enterprises to continue to operate as fully private entities.<sup>1</sup> This paper is the first of several pieces of research that were commissioned to review aspects of those issues.<sup>2</sup>

This paper is intended to help address questions about alternative ways that such a transformation might be accomplished, the institutional forms that successor companies might adopt, and

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<sup>1</sup> The Federal Housing Enterprises Safety and Soundness Act of 1992 (FHEFSSA), Pub. L. 102-550, Sec. 1355, codified at 12 U.S.C. Sec. 4511 et seq..

<sup>2</sup> The resulting research studies are collected in this volume.



some of the policy questions that need to be answered to make such restructuring a success. The paper is also intended to be of use to other researchers on this project. It seeks to provide a framework for discussion and to suggest issues for further research that relate to the economic effects of restructuring and the nature of the residential mortgage market and competition thereafter, including the quality of service to lower income and other disadvantaged borrowers.

Corporate restructuring of two huge companies such as Fannie Mae and Freddie Mac is a massive and complex undertaking. It dwarfs in scale (by an order of magnitude) the financial reorganization of the Continental Illinois Corporation. Qualitatively, such corporate restructuring can be compared in its effects to major antitrust litigation that results in replacement of a major dominant firm with groups of large competitors serving a redefined market. This occurred, for example, in the breakup of the American Telephone and Telegraph Company (AT&T)<sup>3</sup> and, earlier, the Standard Oil Company,<sup>4</sup> after those firms had dominated the markets for telephone services and petroleum products, respectively. Considerable legal research will be required to assure that any restructuring legislation is well crafted.

The 1992 legislation used the term “privatization” to refer to the transformation of today’s GSEs into companies that would compete in the private marketplace without the benefits or limitations of GSE status. However, the term “privatization” is a misnomer in this context. Privatization is generally understood to mean a process of converting a government-owned company for sale to private owners. Thus, privatization of a government enterprise generally involves selling or distributing stock to new private owners. By contrast the ownership of Fannie Mae and Freddie Mac is already in private hands. Indeed, shares of their voting stock trade freely on the New York Stock Exchange. Thus, this paper uses the terms “transformation” or “restructuring” rather than “privatization” to describe the distinctive changes to be examined pursuant to the 1992 legislation.

This paper is organized as follows: Section I is this introduction. Section II provides an introduction to the benefits of using the GSEs as instruments of federal policy in the secondary mortgage market and, conversely, the benefits of permitting the secondary mortgage market to function without the GSEs. One important issue involves the lifecycle of GSEs: Enterprises that were very significant in the early years of their operations may provide less value to the market in later years when new technologies and forms of competition remove the market imperfections that the GSEs originally helped to overcome. The section concludes by looking at restructuring from the perspective of private shareholders who have invested in stock of Fannie Mae or Freddie Mac.

Section III reviews the conditions prescribed in the 1992 legislation and the history of previous proposals to restructure Fannie Mae and Freddie Mac. It presents an analysis of agency

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<sup>3</sup> The decree breaking up AT&T was entered in *American Telephone & Telegraph Company v. United States*, 552 F.Supp. 131, at 226–234 (D.C.D.C., 1982). An excellent overview of the context and legal mechanics of the breakup is found in Michael K. Kellogg, John Thorne, and Peter W. Huber, *Federal Telecommunications Law* (Boston, MA: Little Brown & Co., 1992).

<sup>4</sup> *Standard Oil Company of New Jersey v. United States*, 221 U.S. 1, 31 S.Ct. 503 (1911).

status and the mechanics of removing the perception of implicit government support from the activities of Fannie Mae and Freddie Mac and suggests criteria that can be used to help determine the desirability and feasibility of removing GSE status from the companies. The section concludes by reviewing alternative institutional forms that might be selected by successor firms to today's GSEs.

Section IV presents alternative approaches to removing GSE attributes from Fannie Mae and Freddie Mac. In all cases the removal of GSE attributes will result in creation of new successor operating companies and a winding up of the business activities of the current GSEs. Additional options can include new forms of government support for the mortgage market to assure continuation of some of the benefits that the government currently provides through the GSE status of Fannie Mae and Freddie Mac.

Section V assesses the feasibility in terms of the many private interests that must be addressed in any restructuring process, and Section VI assesses several procedural options for dealing with the complexities involved in restructuring. Because the GSEs are creations of the Congress, all of the procedural options involve some form of new legislation.

Finally, Section VII presents the conclusion: A well-conceived process can address the technical complexities of removing GSE status from Fannie Mae and Freddie Mac in a way that accomplishes the transformation efficiently and effectively. What is required for a successful restructuring of the secondary mortgage market is a political consensus that such change is desirable. Then the technical solutions will follow.

## **II. CONSIDERATIONS CONCERNING THE DESIRABILITY OF RESTRUCTURING FANNIE MAE AND FREDDIE MAC**

### **A. The Benefits of Using Government-Sponsored Enterprises To Serve the Residential Mortgage Market**

The GSE is a policy tool of government with strengths and limitations.<sup>5</sup> The government charters GSEs as privately owned institutions to serve high-priority borrowers such as homebuyers, students, and farmers. The most successful government involvement in the credit markets, and the most successful GSE, is one that helps to overcome market imperfections that impede the efficient flow of credit to such borrowers.<sup>6</sup>

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<sup>5</sup> Thomas H. Stanton, "Federal Credit Programs: The Economic Consequences of Institutional Choices," *The Financier: Analyses of Capital and Money Market Transactions*, Vol. 1, No. 1, February 1994, pp. 20–34, and U.S. Congressional Budget Office, *An Analysis of the Report of the Commission to Promote Investment in America's Infrastructure*, February 1994, especially at pp. 51–69, are two publications that explore the alternative institutional forms that government may select to carry out public purposes in the credit markets. A major general work on the tools of government is Lester M. Salamon, ed., *Beyond Privatization: The Tools of Government Action* (Washington, DC: Urban Institute Press, 1989).

<sup>6</sup> Barry P. Bosworth, Andrew S. Carron, and Elisabeth H. Rhyne, *The Economics of Federal Credit Programs* (Washington, DC: Brookings Institution, 1987), pp. 6–10, discuss the rationale for government involvement in the credit markets.

The government charters GSEs under laws that provide special benefits and that lower their costs of doing business. The distinctive advantage that Fannie Mae and Freddie Mac receive is a set of statutory attributes (described in more detail in Section III–C, below) that confers “agency status” on their obligations and mortgage-backed securities (MBSs). Agency status lowers the borrowing costs of a GSE because of the market’s perception that the government will not allow holders of obligations or MBSs to lose money if a GSE ever were to fail financially.<sup>7</sup> The government also may confer tax and regulatory advantages upon a GSE.<sup>8</sup>

The government provides these distinctive financial advantages in support of the public purposes that the GSEs are chartered to serve. These public purposes are defined in the enabling legislation of each GSE in the form of limitations upon its permitted business activities. Thus, Fannie Mae and Freddie Mac are limited to serving the secondary market for residential mortgages of a size, type, and credit quality specified by law.

Fannie Mae and Freddie Mac serve a variety of public purposes defined by their charter acts. By far the overwhelming part of their activities relates to providing a secondary market for investment-grade, single-family residential mortgages. The companies pass on some part of their statutory benefits (such as lower borrowing costs because of the perceived implicit guarantee and state and local income tax exemption) to homebuyers in the form of lower mortgage rates than otherwise would be the case. The Congressional Budget Office (CBO), for example, has estimated that the activities of Fannie Mae and Freddie Mac help to reduce the interest rates that homebuyers pay for conforming mortgages by perhaps 30 basis points.<sup>9</sup>

The law also requires Fannie Mae and Freddie Mac to purchase mortgages of low- and moderate-income homeowners, multifamily mortgages, and mortgages in central cities, rural areas, and other underserved areas,<sup>10</sup> but with reasonable economic return to the two corporations.<sup>11</sup> The

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<sup>7</sup> The agency status of GSE obligations involves the creation of federal ties to the GSEs that give rise to a perception in the securities markets that there is an implied government guarantee of obligations of these enterprises. The government has systematically disavowed any explicit guarantee of GSE obligations or MBSs. It should be understood therefore that any use in this paper of terminology concerning agency status or implicit government backing is meant to reflect market perceptions rather than to express any opinion about whether the government would or would not act to support holders of obligations of an enterprise that became troubled or failed. This issue is discussed more fully in Section III–C, below.

<sup>8</sup> A good summary of benefits that federal law confers upon Fannie Mae and Freddie Mac is found in U.S. Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (Washington, DC: April, 1991), pp. 6–9.

<sup>9</sup> *Ibid.*, p. 138. This margin appears to have narrowed in recent months.

<sup>10</sup> U.S. Department of Housing and Urban Development, Office of the Secretary, “Federal National Mortgage Association and Federal Home Loan Mortgage Corporation; Interim Housing Goals; Notices,” *Federal Register*, Vol. 58, No. 196, October 13, 1993, pp. 53048–53096 and *Federal Register*, Vol. 58, No. 221, November 18, 1993, p. 60867; and Henry G. Cisneros, Secretary of Housing and Urban Development, “Interim 1993 Housing Goals Performance For Fannie Mae and Freddie Mac,” Statement to the Senate Committee on Banking, Housing and Urban Affairs, April 13, 1994.

<sup>11</sup> The charter acts of Fannie Mae and Freddie Mac provide that the companies conduct “activities relating to mortgages on housing for low- and moderate-income families involving a reasonable economic return that may be less than the return (continued...)”



law gives Fannie Mae and Freddie Mac a role in assuring that primary lenders adhere to tenets of fair lending.<sup>12</sup> From time to time, the government also may use an enterprise to support other federal housing activities, again with reasonable economic return to the companies and their shareholders.

Fannie Mae and Freddie Mac have provided a number of benefits in promoting the efficiency of the residential mortgage market. These include (1) standardizing mortgage instruments and procedures and (2) pioneering or implementing a variety of financial innovations. Some of these innovations have had a substantial impact; the most important of these was the way that Freddie Mac, following the lead of the Government National Mortgage Association (Ginnie Mae),<sup>13</sup> helped to develop MBSs as a means of financing hundreds of billions of dollars of residential mortgages.

Fannie Mae and Freddie Mac are owned by investor-shareholders. This has a number of consequences. From the government's perspective in today's environment of tight federal budget constraints, one of the most important results of private ownership is that the GSEs can provide their federal benefits without being recorded in the annual federal budget. Another consequence is especially important to this paper: Private ownership means that the government has made commitments that have become the basis for investment by private shareholders in the stock of Fannie Mae and Freddie Mac. The government has an obligation to live up to those commitments.

Shareholder ownership and control mean that the GSEs can operate as profit-oriented private sector institutions without regard to many of the limitations that today can impede the capacity of government departments and agencies. The combination of private ownership and government backing permits the GSEs to offer generous compensation to attract capable people with skills relating to financial instruments and products, management information systems, automated financial systems, and other expertise that is needed to provide high-quality financial services. Also, they are free to hire, promote, and lay off employees according to changes in their business operations and without regard to the types of restrictions that apply to government institutions through the civil service system.

The strength and resilience of the private sector was seen in the late 1980s, as Fannie Mae and Freddie Mac, mortgage bankers, and commercial banks increased their activities to compensate for the failure of thousands of thrift institutions that earlier had been the mainstay of the residential mortgage market. As a result of their growth, Fannie Mae and Freddie Mac today are two of the world's largest financial institutions, with combined assets and MBSs outstanding of more than \$1 trillion.

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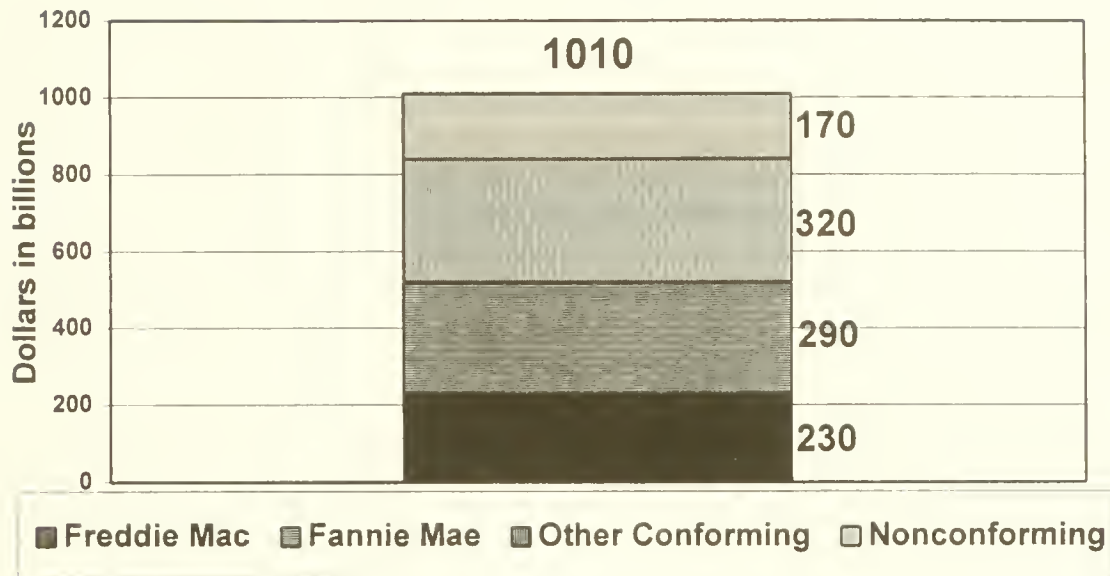
earned on other activities..." 12 U.S.C. Sec. 1716 (3) and 12 U.S.C. Sec. 1451 note.

<sup>12</sup> 12 U.S.C. Sec. 4545.

<sup>13</sup> Ginnie Mae is the Government National Mortgage Association, a wholly owned government corporation within the U.S. Department of Housing and Urban Development. See 12 U.S.C. Sec. 1716 et seq.

FIGURE 1

1993 Mortgage Origination Funding  
(1-4 Family Mortgages)



Note: Fannie Mae/Freddie Mac numbers include seasoned purchases, nonconforming shares estimated based on their share of purchase money fundings.

Sources: Fannie Mae Investor/Analyst Report, Freddie Mac Investor/Analyst Report. HUD Survey of Gross Flows, Federal Housing Finance Board.

Figure 1 gives a sense of the magnitude of activity of Fannie Mae and Freddie Mac in the residential mortgage market. A total of \$1.01 trillion of 1-4 family home mortgages was originated in 1993. Possibly 55% to 60% of this volume represented refinancing of outstanding mortgages. Fannie Mae and Freddie Mac together purchased slightly more than half of the total amount, \$520 billion, either to hold in portfolio or to place into MBSs. Any proposal to restructure Fannie Mae and Freddie Mac to remove government sponsorship from their activities must address the question of whether some combination of efficient markets and government action can substitute to assure that homebuyers would be well served by a residential mortgage finance system that did not include the GSEs as a dominant form of government involvement.

If removal of GSE benefits from the activities of Fannie Mae and Freddie Mac is found to involve disadvantages to parts of the residential mortgage market, then policymakers will need to consider whether enough funds would be available in the federal budget to permit the government to substitute alternative forms of subsidy. A major policy benefit of the GSE is the way that it provides financial benefits and incurs potential taxpayer costs in a form that is not scored for budget purposes except in cases of financial failure. Other tools of government policy (such as tax expendi-

tures or direct extensions of federal credit) may require immediate scoring of budgetary outlays to cover anticipated reductions in tax revenues or future contingent liability.

Policymakers must also address the fact that today's GSEs are going concerns. Any restructuring will involve a transition to a new market structure and the possibility of financial risks during the process. Section IV, below, explores some of the issues of financial risk that arise from alternative approaches to restructuring. One important question, highlighted by the 1987 U.S. Department of Housing and Urban Development (HUD) report on Fannie Mae,<sup>14</sup> is whether sufficient capital will exist in Fannie Mae and Freddie Mac at the time of restructuring to permit shareholders to invest some of that capital in the new successor companies while retaining enough to assure minimal financial risk in the process of liquidation of the old GSEs.

## **B. The Benefits of Removing Government-Sponsored Enterprise Status From Fannie Mae and Freddie Mac**

Given all of the benefits that the GSEs have provided to the residential mortgage market and the possibility that restructuring could involve unanticipated financial risks, it is reasonable to ask: Why consider changing a system that has worked so well? Sallie Mae addressed this question in its proposal to give up GSE status. In a recent document, *Restructuring Sallie Mae*, Sallie Mae points to a "GSE lifecycle" and suggests that the company is now entering the final phase of that cycle.<sup>15</sup>

For Fannie Mae and Freddie Mac, the issue of lifecycle relates to the substantial improvements in the residential mortgage market since they were created. That market has evolved to a state of such efficiency that government support through the GSEs arguably might not yield the same benefits (or avoid the same costs) in the future as in the past. By contrast, the burgeoning size of Fannie Mae and Freddie Mac greatly increases the volume of securities outstanding with a perception of implicit government backing and the associated potential taxpayer liability.

Burgeoning size also brings a possibility that the legal framework for Fannie Mae and Freddie Mac increasingly may impede rather than enhance the efficiency of the mortgage market. For example, the Fannie Mae and Freddie Mac Charter Acts create a sharp distinction between the primary and secondary mortgage markets and impose limitations upon the scope of financial services that the secondary market institutions may provide. These are judgmental issues that ultimately must be addressed by policymakers; the purpose of the present paper is merely to help inform such judgments by showing both sides of the analysis.

Finally, policymakers may look to the history of other federally supported institutions to obtain a sense that some organizations that were truly beneficial at their inception can precipitate serious financial loss, both to their private owners and to taxpayers, if they stay around too long.

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<sup>14</sup> U.S. Department of Housing and Urban Development. *1987 Report to Congress on the Federal National Mortgage Association* (Washington, DC: September 27, 1989), pp. 49–51.

<sup>15</sup> Sallie Mae, *Restructuring Sallie Mae* (Washington, DC: September 1994), p. 3.



Examples range from railroads in the 19th and 20th centuries to the failure of thousands of thrift institutions in the 1980s. The problem is, of course, that a particular form of financial institution can provide substantial continuing benefits for a broad range of constituencies. By contrast, issues relating to lifecycle and future financial difficulties are less immediately tangible; even when structural shortcomings are clear, it may be difficult to predict either the way that problems would actually materialize or when.<sup>16</sup>

### *(1) Evolving Competitive Circumstances Can Erode the Benefits of Federal Charters*

First, the contributions of Fannie Mae and Freddie Mac in helping to overcome significant imperfections in the residential mortgage market must be considered. Economists note that the United States for a number of years had an imbalance between parts of the country with available investment funds, especially the Northeast, and the growing Sun Belt states with excess demand for mortgage money.<sup>17</sup> Much of the impediment to efficient flows of mortgage money appears to have been the result of legislation. Indeed, it has been argued that a major benefit of the GSEs has been to overcome the fragmentation of financial markets that was caused by geographic limitations and branching restrictions that prevented development of nationwide banking institutions that are common in other economically advanced countries.<sup>18</sup>

By the mid 1980s economists perceived that, while Fannie Mae and Freddie Mac did contribute to the perfection of the capital markets,<sup>19</sup> the extent of such contribution was declining:

“As the U.S. financial system becomes less regulated, the ability of the sponsored agencies to influence the allocation of resources by serving as intermediaries may become even more dubious. If the resulting market solution to resource allocation is still viewed as suboptimal from a social point of view, some form of direct subsidy may be necessary to achieve the desired outcome.”<sup>20</sup>

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<sup>16</sup> Thus, analysts with a historical perspective note that much of the major financial legislation in the United States has been crisis-oriented: “[R]eform has frequently been crisis-oriented. Despite an awareness of the structural defects in the financial system or in the monetary authority, little effort is directed toward reform until a crisis has occurred or is about to occur.” Thomas F. Cargill and Gillian G. Garcia, *Financial Reform of the 1980s* (Stanford: Hoover Institution Press, 1985), p. 38.

<sup>17</sup> David Seiders, “The Future of Secondary Mortgage Markets: Economic Forces and Federal Policies,” *Housing Finance Review*, Vol. 3, No. 3 (1984), pp. 323–4 and 327. Such imbalances have also existed between some center cities and their suburbs.

<sup>18</sup> Susan E. Woodward, “The Policy Issues in the Privatization of Fannie Mae and Freddie Mac,” paper prepared for the Thirteenth Annual Conference of the Federal Home Loan Bank of San Francisco (December 1987), pp. 3–4 (typed text); see also Council of Economic Advisers, *Economic Report of the President* (February 1986), pp. 211–212.

<sup>19</sup> Bosworth, Carron, and Rhyne (*supra* note 6, at p. 72) argue that MBS activity can be justified on this basis, but that “...it may no longer be necessary for the agencies to continue to purchase mortgages for their own account—particularly when they fail to hedge against interest rate risk.”

<sup>20</sup> Michael J. Moran, “The Federally Sponsored Credit Agencies: An Overview,” *Federal Reserve Bulletin*, Vol. 71, No. 6, June 1985, pp. 373–388, at p. 385.

The passage of legislation in recent years has helped to address past imperfections in the residential mortgage market. Some laws, such as the Secondary Mortgage Market Enhancement Act of 1984, have helped to reduce the regulatory burdens upon competitors to Fannie Mae and Freddie Mac; other laws, such as those that have reduced the geographic restrictions upon services provided by banks and thrift institutions, have helped to reduce the legal basis for past market imperfections.<sup>21</sup>

## *(2) Risk to Taxpayers Remains a Continuing Aspect of GSE Status*

The second consideration is the issue of the potential risk to taxpayers that currently arises from the perceived implicit government guarantee of more than \$1 trillion of Fannie Mae and Freddie Mac obligations and MBSs.<sup>22</sup> This has been well analyzed, in studies by HUD, the U.S. Department of the Treasury, the U.S. Congressional Budget Office, and the U.S. General Accounting Office.<sup>23</sup>

The issue of taxpayer exposure can be summarized as follows. In 1991 the Standard and Poor's Corporation assessed the financial strength of Fannie Mae and Freddie Mac and assigned "risk to the government" letter ratings of "A-" and "A+," respectively.<sup>24</sup> Yet, because of the perception of implicit government backing, obligations of the two companies consistently trade in the market as federal agency securities, at prices more favorable than obligations of the highest-rated "AAA" companies. In other words the market believes that the government is taking some risk in creating the perception of a relationship between the GSEs and the government.<sup>25</sup> So long as the

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<sup>21</sup> Notable in this regard is the just-enacted Riegle-Neal Interstate Banking and Branching Efficiency Act, Public Law No. 103-328.

<sup>22</sup> It should be recognized that the immense volume of such securities outstanding is far larger than the potential claims if losses ever were to occur. The government's implicit contingent liability is reduced by the value of assets, primarily mortgages, that would be available in MBS pools and the portfolios of the two companies to pay the claims of holders of MBSs and debt obligations.

<sup>23</sup> U.S. Department of Housing and Urban Development, *1986 Report to Congress on the Federal National Mortgage Association* (Washington, DC: 1987); *1987 Report to Congress on the Federal National Mortgage Association*, *supra* note 14. U.S. Department of the Treasury, *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (Washington, DC: May 1990); *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (Washington, DC: April 1991). U.S. Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises*, *supra* note 8. U.S. General Accounting Office, *Government-Sponsored Enterprises: The Government's Exposure to Risks* (Washington, DC: August 1990); *Government-Sponsored Enterprises: A Framework for Limiting the Government's Exposure to Risks* (Washington, DC: May 1991).

<sup>24</sup> The Standard & Poor's study is published in the 1991 *Report of the Secretary of the Treasury on Government-Sponsored Enterprises*, *supra* note 23. Pages A-25 to A-45 discuss the rationale for the ratings of Fannie Mae and Freddie Mac.

<sup>25</sup> The difference in ratings between "AAA" and "A" is instructive. Standard and Poor's defines its ratings as follows: "Debt rated 'AAA' has the highest rating assigned by Standard & Poor's. Capacity to pay interest and repay principal is extremely strong.... Debt rated 'A' has a strong capacity to pay interest and repay principal although it is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than debt in higher rated categories." Standard & Poor's Corporation, "Rating Definitions: Long-term Debt," *S&P's Structured Finance Criteria* (New York, NY: Standard & Poor's Corporation, 1988), p. 5.

GSEs meet their obligations, the spreads between agency status and “A” obligations provide a convenient off-budget subsidy to the GSEs, the mortgage markets, and GSE shareholders.

One should note that the particular rating of the risk to the government may vary from time to time; the 1991 report is merely the most recent published report. In addition to short-term variations, a longer term issue is significant: If political or market developments were to erode the value of a GSE’s charter, the risk to taxpayers could rise.

Even with the creation of the Office of Federal Housing Enterprise Oversight,<sup>26</sup> there is some chance that the federal government could one day be asked to pay claims from holders of GSE securities that were issued with the attributes of agency status. With more than \$1 trillion of such securities outstanding and with their volume growing substantially each year, even a tiny possibility that this situation could occur would provide some reason at least to explore the costs and benefits of removing GSE status from Fannie Mae and Freddie Mac.

### *(3) Laws May Create Barriers to Efficient Bundles of Services*

Third, consideration should be given to the benefits of repealing laws that would seem to impede development of a more efficient residential mortgage market. This issue has not been well explored in the academic literature and deserves brief discussion here. The charter acts of Fannie Mae and Freddie Mac have a number of effects upon the efficiency of the residential mortgage market. First, they confer special advantages upon Fannie Mae and Freddie Mac vis-a-vis other competing firms and thereby create a duopoly of dominant firms in the conforming mortgage market. Second, they limit the scope of services that Fannie Mae and Freddie Mac legally may provide and thereby impose an artificial segmentation upon the residential mortgage market. It is a consequence of law rather than marketplace dynamics that creates today’s clear distinction between the markets for conforming and nonconforming mortgages, that separates the primary mortgage market from the secondary mortgage market, and that limits the types and combinations of services that Fannie Mae and Freddie Mac provide.

The law has created dominance of the residential mortgage market by a duopoly consisting of two huge GSEs. The United States has a long tradition of concern about the market power and political power that can be wielded by monopolists and especially by those whose powers derive from a special grant of benefits from the state.<sup>27</sup>

The charter difficulties of the Bank of North America in the 18th century, the “Bank War” between President Andrew Jackson and the second Bank of the United States in the 19th century,

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<sup>26</sup> The office was established by FHEFSSA.

<sup>27</sup> A good historical discussion is found in Leverett S. Lyon, Myron W. Watkins, and Victor Abramson, *Government and Economic Life: Development and Current Issues of Public Policy* (Washington, DC: Brookings Institution, 1939), Vol. I, pp. 45–58.



and legislation limiting bank holding companies in the 20th century all speak to the political potency of popular fears about government-created private concentrations of economic power.

The antitrust laws reflect a similar concern, bolstered by the view of many economists that monopolies may have the potential to create inefficiencies. When it is government action itself that creates a monopoly or duopoly, the competitive consequences tend to vary according to the presence or absence of market imperfections, economies of scale and scope, and other factors that change over time. Little independent research appears to have been done on such issues with respect to Fannie Mae and Freddie Mac; one economic study that touched upon the question at a time when the companies were much smaller than today seemed to indicate that inefficiencies then were not large, at least with respect to the issuance of MBSs by the two companies.<sup>28</sup>

### **C. The Perspective of Private Shareholders With Respect to the Desirability of Restructuring**

As will be discussed in the following section, shareholder approval of restructuring is an important part of the analysis of the viability of the process. From the perspective of a private shareholder who has invested in equity stock of Fannie Mae or Freddie Mac, the desirability of restructuring can be expressed in a simple question: Will the value of the shareholder's investment rise or drop as a result?

From time to time, owners of banks and thrift institutions have found it advantageous to contemplate changing their charters from state to federal or vice versa or even from bank to thrift or vice versa. The considerations that enter into such changes relate to (1) the relative cost of doing business under one set of laws or the other (because of differences in capital requirements, deposit insurance fees, or requirements to serve socially important but less remunerative market segments, for example), and (2) the range of business activities that are legally permitted under one charter or the other.

In economic terms the issue might be framed in terms of the relative value of outstanding shares of stock of a going concern when it does business under one charter rather than another. At times the value of a GSE charter to shareholders may be quite high, especially if the GSE is reaping monopoly or oligopoly profits. However, as Sallie Mae has suggested, there may be a lifecycle to GSEs. If such a lifecycle does begin to manifest itself, then GSE shareholders and managers may begin to notice that their once highly favorable federal charter may impose increasing constraints upon their ability to adjust business operations to meet the needs of an evolving marketplace. Such constraints would reduce the financial value of the GSE charter. The financial value of the charter to shareholders may also decline if the government imposes increasing responsibilities upon the GSEs to serve less profitable market segments in return for the right to serve the more lucrative parts.<sup>29</sup>

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<sup>28</sup> Bosworth, Carron, and Rhyne, *supra* note 6.

<sup>29</sup> Alternatively, the government may enact legislation to recapture some of the benefits of a GSE charter. Thus, the Student Loan Reform Act of 1993, enacted as a part of the Omnibus Reconciliation Act of 1993, Public Law 103-66, imposes a 30-  
(continued...)

Especially if the loss of charter value becomes great enough to persuade shareholders to offer to give up their company's GSE status, then it may occur to government policymakers to contemplate assessing an exit fee upon institutions before they are permitted to transform their federal charters.<sup>30</sup> For example, the Congress has legislated requirements for an exit fee to be assessed with respect to institutions of the Farm Credit System before they may terminate their status as System institutions.<sup>31</sup> Along similar lines one could conjecture that Sallie Mae might be asked to consider payment of some form of exit fee as part of an arrangement to terminate its status as a GSE.

The issue of relative charter value has important implications for the restructuring process for Fannie Mae and Freddie Mac. First, the process of restructuring must be done efficiently. Any mistakes in allocating managers or systems between the successor companies and the liquidating companies, for example, will reduce the relative value of the new arrangement vis-a-vis the old. A restructuring process will be superior if it provides incentives to maximize the value of the restructured entities (including both the liquidating GSEs and the successor companies) and confines as much as possible any adverse interests between the government and private shareholders to be negotiated in the form of transfer payments between them (e.g., an exit fee).<sup>32</sup>

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(...continued)

basis-point (0.3 percentage point) offset fee upon Sallie Mae. That fee is projected to return some \$28.3 million to the federal treasury in fiscal year 1995. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Fiscal Year 1995: Appendix*, p. 383.

<sup>30</sup> The government may also consider including in an exit fee additional amounts that attempt to recapture some of the benefits of GSE status that may contribute to the competitive advantage of successor firms created by restructuring. These advantages could include reputation, business relationships, systems, and especially the wealth of strategically valuable information that GSE managers can bring to their successor companies. In that way the exit fee may be able to contribute to a more level playing field between the successor companies and other firms that compete in the markets previously served by Fannie Mae and Freddie Mac.

<sup>31</sup> 12 U.S.C. Sec. 2279d, "Termination of System institution status," added by the Agricultural Credit Act of 1987, Public Law No. 100-233.

<sup>32</sup> Some analysts have discussed as an option the possibility that the government might simply purchase the shares of a GSE and then convert it into a government agency, recapitalize it, or wind it up. Edward J. Kane and Chester Foster, "Valuing and Eliminating Subsidies Associated With Conjectural Government Guarantees of FNMA Liabilities" (Washington, DC: typed text, May 1986), pp. 44-46. (Based upon a report submitted to the Department of Housing and Urban Development. A condensed version of this paper appears in Federal Reserve Bank of Chicago, *Proceedings of a Conference on Bank Structure and Competition*, May 14-16, 1986, pp. 347-368.) In such a case, the transfer payments would flow from the government to shareholders in recognition of the fact that at that time the value of operating with the charter of a GSE would exceed the value of operating under any other charter.

Susan Woodward indicates that the Reagan administration regarded this option as politically unworkable: "Even if there is, in principle, a mutually beneficial transaction that could be worked out, it is easy to see that the negotiations necessary to reach it are very difficult. The deliberations never reached such a negotiation. The analysts representing the government were reluctant to make cash offers of compensation to the Fannie Mae shareholders, (for fear of being laughed at by the Congress)...." Susan Woodward, "Privatizing Financial Intermediaries: OPIC, Fannie Mae and Sallie Mae" (undated manuscript), p. 13.

Second, as a Freddie Mac task force determined when investigating the question of restructuring,<sup>33</sup> Fannie Mae and Freddie Mac must be restructured at the same time. Otherwise the charter value of a single successor firm is likely to be undercut, at least initially, because of competition from the other firm that continues to operate as a GSE.

Third, the relative value of alternative charters will vary from time to time according to economic and political conditions. Further research can help to define some of the conditions that might increase the value of restructuring to shareholders of today's Fannie Mae and Freddie Mac.

Finally, it may be possible that shareholders or managers of an existing enterprise could fail to assess the true benefits of operating under a new charter.<sup>34</sup> This occurred quite dramatically in the breakup of the Standard Oil Company in 1911. The change came as a result of a court order and involved distributing shares of the stock of new successor companies to the shareholders of the Standard Oil Company. The new companies were then able to exploit new technologies (notably the thermal cracking process) that had been stifled by the rigid bureaucracy of the parent company. Within a year of the restructuring, the value of the stock of the successor companies had doubled. Yet, the Standard Oil Company had fought the government for years to prevent the breakup.<sup>35</sup>

### III. ASSESSING THE DESIRABILITY AND FEASIBILITY OF RESTRUCTURING

#### A. The 1992 Legislation

The 1992 legislation prescribes the parameters of the restructuring process as understood in this paper:

- The special federal charters of the two enterprises will be repealed.
- Federal sponsorship, including any perception of an implicit guarantee of the enterprises' obligations or MBSs, will be eliminated.

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<sup>33</sup> Alan R. Winger, "Splitting Up is Hard to Do," *Secondary Mortgage Markets*, Vol. 4, No.1, pp. 12–15 (Spring 1987); Advisory Committee to the Board of Directors of the Federal Home Loan Mortgage Corporation (Freddie Mac), "Report of the Task Force on Freddie Mac—Phase II," February 3, 1987, pp. 1–2.

<sup>34</sup> Of possible relevance here, but beyond the purview of this paper, may be the literature on corporate governance and the possible divergence between perceived interests of company managers and those of shareholders. See Michael C. Jensen, "The Modern Industrial Revolution, Exit and the Failure of Internal Control Systems," *The Journal of Finance*, vol. 48, no. 3 (July 1993), pp. 831–880.

To the extent that the salaries paid to GSE managers reflect the benefits of a favorable government charter, and not merely the skills that they provide in a competitive marketplace, the managers of today's government-sponsored enterprises may have a stake in continuing GSE status at least for the period of their expected tenure. This issue can be addressed in a number of ways—for example, by providing for a long period between the enactment of restructuring legislation and the actual transition date.

<sup>35</sup> Daniel Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (New York, NY: Simon & Schuster, 1991), pp. 106–113.



- The two companies will continue to operate as fully private entities, subject to the state and federal laws applicable to the forms of business and the states where they are located.

This paper adds a fourth simplifying assumption:

- Restructuring of the two enterprises will not progress unless it is acceptable to the managers and shareholders of Fannie Mae and Freddie Mac and is approved formally by shareholders of the two companies.

There are compelling reasons for adding the fourth assumption. First, the GSEs tend to be powerful participants in the political process.<sup>36</sup> This makes their approval important as a practical precondition to a restructuring process.<sup>37</sup> Second, the companies and their shareholders have legal rights that undoubtedly would give rise to litigation if shareholders were not treated fairly.

Third, any extreme conflict over restructuring is not likely to be in the best interests of the country or the government, because of the possibility that it could lead to disruption of the financial markets. (This happened in its most excessive form in the 1830s, during the pitched political battle over rechartering between the administration of President Andrew Jackson and the second Bank of the United States.)

Finally, there may be a time when managers and shareholders of Fannie Mae and Freddie Mac decide that it would be in their own best interests to exchange the benefits and limitations of a federal charter for the flexibility of a state charter.<sup>38</sup> Sallie Mae has proposed such a restructuring in its 1993 Annual Report.<sup>39</sup> Sallie Mae's document, *Restructuring Sallie Mae*, sounds the theme of a win-win transaction that benefits both its shareholders and the American people.<sup>40</sup> Similarly, experts in

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<sup>36</sup> This point was made in a recent federal study: "The principal GSEs are few in number; they have highly qualified staffs; they have strong support for their programs from special interest groups; and they have significant resources with which to influence political outcomes." 1991 *Report of the Secretary of the Treasury on Government-Sponsored Enterprises*, *supra* note 23, at p. 8.

<sup>37</sup> This was the conclusion of officials of the Reagan administration after they tried but failed to remove government sponsorship of the two GSEs. See Woodward, *supra* note 32, at p. 2.

<sup>38</sup> The lifecycle of a special purpose firm such as Fannie Mae or Freddie Mac can be quite different from that of the ordinary firm that is free to adjust its activities and lines of business in response to market developments and without regard to the legal limitations imposed by a special-purpose federal charter. See Thomas H. Stanton, "Nonquantifiable Risks and Financial Institutions: The Mercantilist Legal Framework of Banks, Thrifts, and Government-Sponsored Enterprises," Chapter 3 of Charles A. Stone and Anne Zissu, eds., *Global Risk Based Capital Requirements* (Homewood, IL: Irwin Professional Publishing, 1994), Vol. 1, pp. 57-97.

<sup>39</sup> "As we position the corporation for a future of expanded opportunity, we will continue to explore changes in Sallie Mae's charter to remove remaining attributes of a government-sponsored enterprise (GSE) and reposition Sallie Mae as a private, state-chartered corporation....We are now moving through the charter transformation process, reviewing its potential merits and methods with leaders in the Administration and the Congress." Sallie Mae, *1993 Annual Report* (1994), p. 8.

<sup>40</sup> Sallie Mae, *Restructuring Sallie Mae*, *supra* note 15, at pp. 7-8 ("Benefits and Beneficiaries").

agricultural finance have begun contemplating that the Farm Credit System eventually may need to give up its special status as a GSE in return for the flexibility of state chartering.<sup>41</sup>

## **B. History of Proposals To Restructure Government-Sponsored Enterprises**

The idea of restructuring (or privatizing, as it often has been termed) Fannie Mae and Freddie Mac has been contemplated for many years. Indeed, the 1954 Charter Act of the Federal National Mortgage Association (then a wholly owned government corporation) called for the later enactment of legislation to provide that the secondary market operations be conducted by “a privately owned and privately financed corporation.”<sup>42</sup>

Legislative history indicates that the new private corporation was intended to be created to operate without any perception of implicit government backing of its obligations.<sup>43</sup> In the 1968 legislation that provided for full private ownership of today’s Fannie Mae, the 1954 legislative language was followed only to the extent of making Fannie Mae into a privately owned GSE that funded its secondary mortgage market activities through use of a perceived implicit government guarantee.

The Reagan administration actively pursued a policy of seeking privatization of Fannie Mae and Freddie Mac through removal of the attributes creating the perception of implicit government backing.<sup>44</sup> The administration adopted a number of initiatives in this regard, including the practice of opposing expansion of charter authority for the GSEs except in exchange for a reduction in ties to the government.<sup>45</sup>

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<sup>41</sup> David Freshwater and Charles H. Riemenschneider, “Is a Revised Mandate for the Farm Credit System Needed?” Staff Paper, Department of Agricultural Economics, University of Kentucky, February 1994.

<sup>42</sup> Federal National Mortgage Association Charter Act of 1954, Section 303(g).

<sup>43</sup> This legislative history is set forth in U.S. Department of Housing and Urban Development, *1986 Report to Congress on the Federal National Mortgage Association*, *supra* note 23, at pp. 20–21.

<sup>44</sup> See, e.g., Testimony of Lawrence A. Kudlow, U.S. Office of Management and Budget, in hearings before the Subcommittee on Housing and Community Development, Committee on Banking, Finance and Urban Affairs, U.S. House of Representatives, “To Expand and Reorganize the Federal Home Loan Mortgage Corporation,” June 3, 1982, pp. 494–535.

<sup>45</sup> See, e.g., Testimony of Lawrence A. Kudlow, U.S. Office of Management and Budget, in hearings before the Subcommittee on Housing and Urban Affairs, Committee on Banking, Housing and Urban Affairs, United States Senate, “Secondary Mortgage Market,” May 5, 1983: “...significant changes in the structure, scope or mandate of Federally-sponsored agencies must also include provisions to reduce at least some ties to the Federal government, thereby creating better balance between the public and private sectors of the mortgage finance industry by making the agencies more private and permitting private firms to become more competitive.” Hearings at p. 35.

Throughout the Reagan administration, reports by the President's Commission on Housing,<sup>46</sup> the Grace Commission,<sup>47</sup> and the President's Commission on Privatization<sup>48</sup> recommended some form of restructuring that involved complete elimination of the perception of an implicit federal guarantee from the obligations of Fannie Mae and Freddie Mac.

In 1986 the board of directors of Freddie Mac appointed a task force to examine options for privatizing Freddie Mac. The task force concluded that privatization was an attractive option, but that any such transition had to wait until Fannie Mae recovered its financial strength so that it could be privatized as well. Otherwise the new Freddie Mac, operating without agency status for its obligations, would be unable to compete with a Fannie Mae whose obligations and MBSs retained such status.<sup>49</sup>

A 1986 HUD report, released in 1987, provided detailed discussion of the advantages and drawbacks of seven different forms of restructuring that involved prompt or eventual transition of Fannie Mae and Freddie Mac to private status without benefit of a perceived implicit government guarantee. The report presented a total of 12 options to deal with the government's financial risk exposure; only 1 of these involved maintaining the status quo.<sup>50</sup>

Finally, a 1987 HUD report, released in 1989, set forth a plan for restructuring Fannie Mae (presumably to accompany the restructuring plan advanced by the Freddie Mac task force). The HUD report recognized that Fannie Mae was insufficiently capitalized to be able to compete against Freddie Mac if both companies were restructured at the same time. HUD therefore suggested a 6-year transition period involving a reduction in size of Fannie Mae's portfolio, reliance upon MBSs

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<sup>46</sup> *Report of the President's Commission on Housing*, April 29, 1982, at pp. 167–168. The Commission recommended elimination of the implicit government guarantee but retention by Fannie Mae and Freddie Mac of other benefits such as the exemption from state and local income taxes in return for having the corporations retain special purpose charters that generally confined their activities to the secondary market for residential mortgage loans.

<sup>47</sup> *President's Private Sector Survey on Cost Control*, "Task Force Report on Boards/Commissions—Banking," May 26, 1983, pp. 234–239, 262–273.

<sup>48</sup> *Privatization: Toward More Effective Government* (Washington, DC: March 1988), pp. 38–39. The Commission recommended that: "The Federal National Mortgage Association and, by extension, the Federal Home Loan Mortgage Corporation, should be fully privatized on an appropriate schedule and with an announced transition period. This full privatization would entail the elimination of all federal benefits and limitations. During the scheduled transition to full privatization, they should pay fees for their federal attributes, increase their equity-to-assets ratios, and satisfy Securities and Exchange Commission registration requirements, among other steps." [at p. 38.]

<sup>49</sup> Winger, *supra* note 33, at pp. 12–15; Advisory Committee to the Board of Directors of the Federal Home Loan Mortgage Corporation, *supra* note 33, at pp. 1–2. The Advisory Committee to the Board of Directors reviewed the first task force report and authorized its public release on October 17, 1986. The basic concept of the task force was to divide Freddie Mac into two entities, a continuing GSE with carefully defined public purposes and a new entity operating without the limitations of a federal charter and without any perception of an implicit government guarantee. The capital and other resources of the current Freddie Mac would be allocated between the two successor companies.

<sup>50</sup> U.S. Department of Housing and Urban Development, *1986 Report to Congress on the Federal National Mortgage Association*, *supra* note 23, at pp. 179–191.



rather than debt to fund mortgage activities, a freeze in conforming loan limits, and a systematic buildup of Fannie Mae's capital.<sup>51</sup>

These efforts of the Reagan administration to accomplish restructuring of Fannie Mae, Freddie Mac, and Sallie Mae failed completely,<sup>52</sup> and the 1992 legislation provides an opportunity to revisit the issue in a somewhat different context.

### **C. Agency Status and the Mechanics of Removing It From the Activities of Fannie Mae and Freddie Mac**

One of the distinctive characteristics of a GSE is the agency status that the government, by law, confers upon its obligations and MBSs. An understanding of the elements of agency status is useful to understand the mechanics that would be involved in restructuring Fannie Mae and Freddie Mac.

In technical terms the preferential borrowing advantage that is conferred upon GSE obligations and MBSs is known as "agency status." The government confers agency status through a precise set of legislated attributes that is intended to create a perception of government backing while disclaiming any explicit commitment of such backing.<sup>53</sup>

Thus, agency status involves carefully crafted statutory provisions that help to create a moral obligation while expressly disclaiming any legal obligation of the federal government. The result is an ambiguity in the financial markets that leads investors to pay a slight premium for agency status obligations, compared to Treasury obligations of comparable maturities. As Edward Kane and Chester Foster state: In effect, the premium over Treasury yields that a GSE pays "compensates lenders for Treasury (and Federal Reserve) officials' retaining an option not to deliver the bailout that the market confidently expects them to provide."<sup>54</sup>

Agency status gives rise to a perception in the financial markets that, if the company experienced severe financial difficulties, then the U.S. Government would protect holders of the company's obligations and guaranteed securities from financial loss. The result of this perception is that a GSE

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<sup>51</sup> U.S. Department of Housing and Urban Development, *1987 Report to Congress on the Federal National Mortgage Association*, *supra* note 14.

<sup>52</sup> Woodward, *supra* note 32.

<sup>53</sup> One interesting legislative attribute of GSE obligations is an express disclaimer of explicit commitment by the federal government. Freddie Mac's charter act, for example, contains the following statutory language: "The Corporation shall insert appropriate language in all of the obligations and securities of the Corporation issued under this section and section 305 clearly indicating that such obligations and securities, together with the interest thereon, are not guaranteed by the United States and do not constitute a debt or obligation of the United States or any agency or instrumentality thereof other than the Corporation." Federal Home Mortgage Corporation Charter Act, Section 306 (f)(2), codified at 12 U.S.C. Sec. 1455 (f)(2). The charter acts of Fannie Mae and other GSEs contain language to similar effect.

<sup>54</sup> Kane and Foster, *supra* note 32, at p. 1.

can issue debt obligations and MBSs at a lower cost than if the market priced such debt on the basis of the company's financial strength and without regard to any possible government backing.

Among the agency attributes that apply to the obligations and MBSs of Fannie Mae and Freddie Mac are the following:

- They are eligible for Federal Reserve open-market purchases.
- They are eligible to collateralize public deposits.
- They are exempt from Securities and Exchange Commission (SEC) registration requirements and are issued upon approval of the Secretary of the Treasury.
- They are eligible for unlimited investment by national banks; state banks that are members of the Federal Reserve System; thrift institutions and credit unions with federal insurance; and federal public, fiduciary, and trust funds.
- They are issuable and payable through the book-entry system of the Federal Reserve Banks.
- The U.S. Treasury is authorized to purchase up to \$2.25 billion of Fannie Mae and Freddie Mac obligations.

Among the additional statutory provisions that apply to Fannie Mae and Freddie Mac and that help to create a perception of distinctive ties to the federal government are the following:

- Fannie Mae and Freddie Mac are corporations chartered by Act of Congress rather than under state law.
- The President of the United States appoints five members (a minority) of the boards of directors for Fannie Mae and Freddie Mac.
- As instrumentalities of the federal government, Fannie Mae and Freddie Mac are probably not eligible to become debtors under the Bankruptcy Code.

GSEs such as Fannie Mae and Freddie Mac may also benefit from other advantages conferred by federal law, such as exemptions from taxes and regulatory requirements that otherwise would apply.<sup>55</sup>

- The federal charters of Fannie Mae and Freddie Mac preempt state laws and permit the companies to serve a national market and develop economies of scale without regard to the types of legal limitations that formerly impeded the geographic expansion of commercial banks and thrift institutions.

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<sup>55</sup> Ronald C. Moe and Thomas H. Stanton, "Government-Sponsored Enterprises as Federal Instrumentalities: Reconciling Private Management with Public Accountability," *Public Administration Review* (July/August 1989), pp. 321–329. The benefits of GSE status are listed in U.S. Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises*, *supra* note 8, table 2, "Legal Benefits Enjoyed by Government Sponsored Enterprises," p. 8.

- Corporate earnings of Fannie Mae and Freddie Mac are exempt from state and local income taxes.

In summary, agency status creates a deliberate financial ambiguity with respect to GSE obligations and MBSs. By contrast the legal craftsmanship that gives rise to this deliberate ambiguity is precise and unambiguous. The result of this precise and deliberate legislative language is a type of security that trades in the federal agency debt market with attributes similar to those of federal government obligations and MBSs.

The carefully crafted nature of agency status means that agency attributes can be removed only with careful attention to technical detail. Some agency attributes can be removed without significant adverse market effects, so long as the removal applies prospectively, that is, only to obligations or MBSs issued after a specified future date. Other agency attributes would seem to be more fundamental in creating a perception of implicit government backing; these would be more difficult to tinker with, even prospectively.

The options for restructuring that are presented in Section IV, below, all involve retaining agency attributes for the obligations and MBSs that are outstanding as of the transition date. Instead of attempting to remove agency attributes in a progressive fashion, the options involve termination of new business activities that may be funded with agency status obligations and substitution of new operating companies that raise their funds as ordinary private firms, without agency status and the perception of implicit government backing.

#### **D. Criteria for Judging the Desirability and Feasibility of Restructuring Fannie Mae and Freddie Mac**

With these considerations in mind, it is possible to list some criteria that may be used to help judge the relative merits of alternative approaches to restructuring Fannie Mae and Freddie Mac. As is reflected in the discussion of each individual criterion, the present paper has the dual purpose of (1) providing a preliminary legal and institutional framework and (2) helping to raise issues that need to be addressed with respect to the desirability and feasibility of restructuring Fannie Mae and Freddie Mac.

##### ***(1) The Transition Period***

The following discussion envisions a transition period for restructuring. The period would begin with passage of enabling legislation that permits the establishment of new successor firms and the liquidation of today's Fannie Mae and Freddie Mac. The period would end with the complete liquidation of today's GSEs. (The transition period is discussed in the following section.)

- *Financial Risk:* The government's exposure to financial risk during the transition period should not exceed acceptable levels. In particular, the perception of an implicit government guarantee should not attach to any new business activities of the companies formed in the restructuring



process. Also, liquidation of the business activities that are based upon agency status funding must be conducted efficiently and prudently.

- *Liquidating GSEs:* The restructuring process involves creation of new successor companies and the winding up of the existing book of business of each GSE.
  - The winding up should be done efficiently, without serious agent-principal problems that could unnecessarily increase costs or the duration of the transition period.
  - The winding up should be done in a way that avoids disruption of the mortgage markets. For example, provision must be made for capable management and systems both to provide services to the residential mortgage market from new successor companies and to wind up the business of the liquidating GSEs.
  - The winding up should be done with minimal distortion of the residential mortgage market. For example, winding up activities of the liquidating GSEs should not unintentionally benefit or burden the competitive position of the successor companies to Fannie Mae and Freddie Mac.
  - The winding up should not impair any perception of agency status of obligations and MBSs that are outstanding when the transition period begins.
- *Service to the Secondary Mortgage Market:* The restructuring process should permit private firms, including successor firms to Fannie Mae and Freddie Mac, to serve the residential mortgage market during the transition period without adversely affecting the availability of mortgage funds. Especially important will be the ability of the market to adjust to a cessation of support by today's Fannie Mae and Freddie Mac during the transition period. Two issues are important here: the ability of non-GSEs to provide financial services in place of today's GSEs without even a temporary disruption in service, and the likely pattern of changes in cost of mortgage money during the transition.
- *Support for Affordable Housing:* Another issue involves the extent to which private firms (e.g., through Community Reinvestment Act (CRA)-type requirements) or federal agencies or instrumentalities, including any new federal corporation that might be chartered, can serve low- and moderate-income homebuyers and renters and people in underserved areas during the transition. This involves the availability as well as cost of mortgage funds for such purposes and the speed with which the other entities can compensate for a cessation of activity by today's Fannie Mae and Freddie Mac.

## (2) *Outcomes of Restructuring*

- *Competitive Firms:* The successor operating companies should operate without legal or regulatory advantages over their competitors. Here it would be important to look at the likely nature of firms competing in the post-restructuring residential mortgage market and determine whether any likely competitors, including successor operating companies to Fannie Mae and Freddie Mac, would somehow operate with a perception that they might be “too big to fail.”

- *Competitive Market*: Ideally, after restructuring of Fannie Mae and Freddie Mac, the residential mortgage market would be served by a number of firms without artificial barriers to entry (i.e., with no firm being so large or entrenched as to be dominant except on the basis of its competitive skills). Again, further research can indicate the likely nature of this market, including the number of firms likely to be involved, the nature of barriers to entry, and the possible effects of new technologies upon the definition of the relevant market.
- *Mortgage Finance*: Restructuring should not impede the availability of mortgage money or result in any adverse changes to the cost of mortgage money that are not offset by benefits of restructuring.
- *Affordable Housing*: A major policy question involves the availability and cost of mortgage funds for low- and moderate-income people and underserved borrowers and areas as a result of restructuring Fannie Mae and Freddie Mac. Policy options need to be assessed, including the extent to which a new federal program or instrumentality would be needed or helpful to substitute for the current affordable housing activities of Fannie Mae and Freddie Mac and the costs and benefits of such a substitution.

## **E. Alternative Legal Forms for the Successor Companies to Fannie Mae and Freddie Mac**

This paper makes a number of assumptions about the end state of the restructuring process. First, the successor companies to Fannie Mae and Freddie Mac will operate under the laws currently applicable to participants in the residential mortgage market other than the GSEs. Thus, to the extent that the antitrust laws apply to particular types of companies, they would apply to the successor companies formed as a result of restructuring.

It is possible that the managers of Fannie Mae and Freddie Mac will decide to incorporate under general state law and thereby obtain the flexibility of a general-purpose charter. Alternatively, they may decide that they want to do some or all of their business under a federal charter (e.g., as a federal savings and loan association, a national bank, or a federally chartered holding company) or as a state-chartered special-purpose company (e.g., as an insurance company or a state-chartered thrift institution). Regardless of the form of charter(s) that they select, the successor companies will not have the benefits and limitations of the old GSE charter (or of related GSE attributes conferred under other laws) and will not benefit from a perception of implicit GSE-type federal backing for their obligations and MBSs.

Second, this paper assumes that the final form of successor company will be selected by the managers of today's Fannie Mae and Freddie Mac, without being limited by the government. That means that it is virtually impossible in this study to anticipate the strategic business decisions that management will make at a time of restructuring with respect to the form of new charters.

Third, this paper assumes that the managers of Fannie Mae and Freddie Mac will decide to remain in the business of providing mortgage finance in some form. In addition, one might surmise that enterprise managers would expand into ancillary services such as providing real estate settlement services, but those are not discussed here. Other researchers will need to ask whether, if the succes-

or companies to Fannie Mae and Freddie Mac were to decide *not* to serve the residential mortgage market any more, other firms could take up the slack in the context of a more competitive market.

Fourth, this paper assumes that enough capital will exist in the successor companies to permit them to conduct their activities on a scale that is appropriate for their lines of business. Such capital would come from proceeds of the restructuring process plus any new funds raised from offerings of stock in the new companies. Other researchers will want to look at this assumption and examine the amounts of capital that would be appropriate for a successor company to serve various aspects of the residential mortgage market.

If they seek to participate in the residential mortgage market, the successor companies could take one or more of the following institutional forms:

- *Private Mortgage Insurance (PMI) Company (state charter)*: If managers want to continue to serve the secondary mortgage market, then they might establish a PMI, chartered under state law. Given the difficulties of seeking regulatory permission from the insurance departments of the 50 states to do business, they may decide to purchase an existing company that is licensed already to do business across the country. PMIs are regulated primarily by the insurance department of the state where they are domiciled, including application of minimum capital standards.
- *Investment Banking Company (state charter)*: Managers might also consider establishing an investment banking firm, presumably structured as a corporation, chartered under the general laws of a state. As an investment banking firm, the company could offer a broad range of financial services, subject to SEC jurisdiction and state securities laws, but otherwise without financial supervision by a government regulator. (If the firm enters a specially regulated line of business such as banking or insurance, then it would become subject to supervision by the relevant regulator.)
- *Commercial Bank or Thrift Institution (federal or state charter; federal deposit insurance)*: If managers wish to serve the primary mortgage market, they may want to acquire a commercial bank or thrift institution. National banks are chartered by the Comptroller of the Currency, while state banks are chartered by the state banking department. Banks are authorized to use the Federal Reserve System to clear their payments and generally obtain deposit insurance backed by the Federal Deposit Insurance Corporation (FDIC). They are examined by state and/or federal bank regulators and are subject to minimum capital requirements. While geographic limitations on banks are eroding, there are a variety of restrictions (e.g., the Glass-Steagall Act) that limit the financial services that they may offer.

Thrift institutions are chartered by the Office of Thrift Supervision (OTS) or by a state agency. Most federal and state thrifts are examined by OTS. They obtain deposit insurance from FDIC and are members of the Federal Home Loan Bank System. The asset powers of federal savings associations are defined in 12 U.S.C. Sec. 1464; the asset powers of state-chartered thrifts are defined by state law, with limitations that may be imposed by federal regulators.

- *Bank or Thrift Holding Companies (federal charter)*: If managers wish to use a bank or thrift to pursue their business objectives, they are likely to use a holding company as a means to offer



additional services through affiliated subsidiaries and to serve a larger geographic market than otherwise might be permitted by law. Thrift holding companies have the legal authority to offer a greater range of services than is permitted to bank holding companies (see 12 U.S.C. Sec. 1467a (c) (2)). Bank holding companies are regulated by the Federal Reserve Board and thrift holding companies by OTS.

- *Mortgage Banking Company (state license)*: Managers also might want to include a mortgage banking company as a part of their holding company structure. Mortgage banking companies can be organized under the general laws of a state. They may be required to obtain a license from a state department of banking, but are not usually subject to capital requirements except for minimum net worth required to do business in some states.

To the extent that the managers of today's Fannie Mae and Freddie Mac adopt one or more of these institutional forms, they will exchange their current requirements with respect to fair lending for somewhat different ones. All of the above institutions are subject to some fair lending requirements. Some laws prohibit discrimination in lending while others impose affirmative requirements to serve borrowers in the relevant market area. The Equal Credit Opportunity Act<sup>56</sup> prohibits discrimination in any extension of credit, including mortgage lending. The Fair Housing Act<sup>57</sup> prohibits discrimination in all aspects of transactions relating to residential real estate, again including mortgage lending.

In addition, lenders that accept deposits (i.e., banks and thrift institutions) are subject to CRA,<sup>58</sup> which seeks to encourage lending to the entire communities that they serve. Mortgage lenders, including mortgage companies, banks, and thrifts, are subject to the Home Mortgage Disclosure Act,<sup>59</sup> which seeks to prevent lending discrimination and redlining by requiring public disclosure of certain information about mortgage loan applications.<sup>60</sup> Other researchers will need to compare the public benefits of the fair lending requirements applicable to Fannie Mae and Freddie Mac today with those that would be likely to apply to the successor companies.

#### IV. POSSIBLE APPROACHES TO RESTRUCTURING

The following options represent five possible outcomes of a restructuring process:

- *Holding Company*: a corporate restructuring of each enterprise into a new holding company chartered under applicable law and without implicit federal backing, accompanied by liquidation of the old GSE a subsidiary of the holding company.

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<sup>56</sup> The Equal Credit Opportunity Act, as amended, is codified at 15 U.S.C. Sec. 1691 et seq.

<sup>57</sup> The Fair Housing Act of 1968 was enacted as Title VIII of the Housing and Urban Development Act of 1968, 42 U.S.C. Sec. 3601 et seq.

<sup>58</sup> The Community Reinvestment Act of 1977, as amended, is codified at 12 U.S.C. Sec. 2901 et seq.

<sup>59</sup> The Home Mortgage Disclosure Act of 1975, as amended, is codified at 12 U.S.C. Sec. 2801 et seq.

<sup>60</sup> See, generally, Interagency Task Force on Fair Lending, *Policy Statement*, adopted March 8, 1994.

- *Separate Companies*: legislation to permit Fannie Mae and Freddie Mac shareholders to take a specified allocation of resources (especially management, systems, and shareholder equity) to purchase or establish new companies, while leaving sufficient resources to permit the government (either directly or through a contractor) to liquidate each GSE through sale of assets and retirement or defeasance of outstanding obligations and winding up or retirement of MBSs.
- *Breakup*: a breakup of Fannie Mae and Freddie Mac into smaller operating companies, followed by restructuring to remove GSE status from the successor companies.
- *New Government Corporation*: some combination of new corporations organized under applicable law, liquidation of Fannie Mae and Freddie Mac, and establishment of a new entity to serve public purposes.
- *Longer Term Phase-In*: a longer term process based upon legislation that prescribes a long phase-in period before restructuring takes place.<sup>61</sup>

Each of these five options would involve a transition period to begin the implementation of the restructuring process. All debt obligations and MBSs that benefitted from agency attributes at the beginning of the transition period would retain these attributes until they were retired. Moreover, some new obligations or MBSs might be issued during the transition period that would carry the perception of an implied government guarantee. Such issuance would be strictly limited to what was necessary to facilitate the process of liquidation (e.g., to help match the duration of assets and liabilities).

Depending upon the level of interest rates, liquidation of the large bulk of assets, debt, and MBSs of Fannie Mae and Freddie Mac would probably occur in 6–8 years; the remainder could last up to 30 years if some mortgages ran their entire term without prepayment and the holders of MBSs insisted on holding on to their securities to the end. Asset sales can generate cash that can be used to defease, purchase, or pay off GSE liabilities much more quickly than otherwise would be possible; other researchers will need to examine the extent to which the various types of assets held by the GSEs are easily valued and easily sellable in bulk to potential purchasers. The mechanics of defeasance and other transactions to reduce the volume of outstanding GSE debt are explored in Section V, below. It should be noted that the five options presented here are only some of the many technical permutations that the GSEs and the government may want to explore once restructuring becomes a more concrete exercise.

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<sup>61</sup> Several other options were considered but were set aside for budgetary reasons. These include forms of restructuring that involve government purchase of stock, debt, or mortgage-backed securities of Fannie Mae and Freddie Mac, or extension of an explicit government guarantee to outstanding debt and mortgage-backed securities. It is unlikely that—absent a financial crisis—the government could find the budget allocations needed to fund a large-scale purchase of stock or other GSE securities.

Under credit reform, extension of a full-faith-and-credit federal guarantee would also require a budget allocation. Especially because extension of such a guarantee would involve a windfall to current holders of Fannie Mae and Freddie Mac debt and mortgage-backed securities, the allocation of budget resources for such a purpose may not find extensive political support.

FIGURE 2

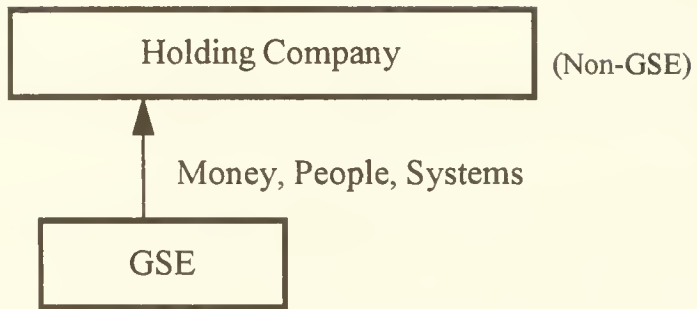
Holding Company Option

Today

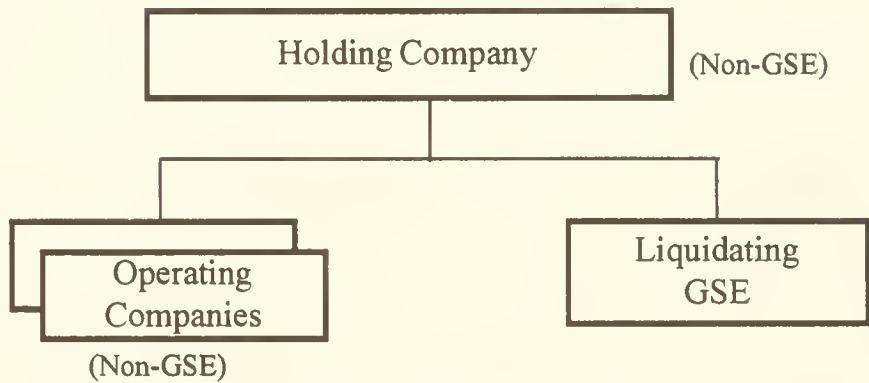


Transition

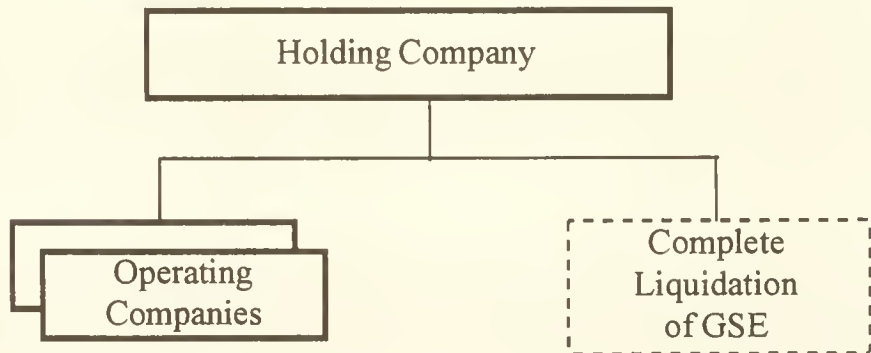
Step 1:



Step 2:



Step 3:





The restructuring of Fannie Mae and Freddie Mac is complicated by the distinctive federal charters of the two enterprises. These two charters lack most of the provisions that are familiar from state corporation laws that help to define the rights and responsibilities of the various corporate stakeholders, and especially of shareholders.<sup>62</sup> The result is that many of the state laws and legal precedents with respect to corporate restructurings may not be completely relevant to the restructuring of Fannie Mae and Freddie Mac. For example, restructuring legislation could usefully specify the size of the majority of shareholders whose votes would be required to approve the decision of GSE managers to accept a restructuring proposal. An offsetting advantage in the process is the possibility that the Congress can legislate provisions that may be needed to deal fairly with the rights of the various parties and to insulate the outcome from opportunistic litigation.

### **A. Creating a Holding Company Structure With Subsidiaries Including New Non-GSE Operating Companies and a Liquidating GSE**

Under this option each enterprise would be reorganized to create a new holding company chartered under applicable law.<sup>63</sup> Shareholders would receive a one-for-one exchange of their current GSE stock for stock of the related new holding company; each of the two holding companies would own the old GSE as a subsidiary in process of liquidation. That liquidating subsidiary would not be permitted to conduct new business and would need to achieve predetermined milestones as to its shrinkage each year. The enabling law would specify that shareholders would not have a taxable event because of the reorganization. Figure 2 shows this option in schematic form.

Each holding company would be authorized to create new operating subsidiaries, again chartered under available state or federal law, as management deemed appropriate, and without a perception of implicit federal backing. The holding companies would be authorized to transfer capital and other resources from their liquidating subsidiaries, so long as sufficient capital remained in the subsidiaries to protect against loss during the liquidation process. To raise additional capital, the holding company and operating companies would be authorized to sell new stock to the public.

The law would direct the Office of Federal Housing Enterprise Oversight (OFHEO) to monitor risks (with special attention to the capacity of managers and systems responsible for the liquidation process) and adjust the levels of required capitalization of the liquidating GSE subsidiaries before distributions would be allowed to the parent holding company. Through the holding companies, shareholders would remain indirect owners of the liquidating subsidiaries and would receive the residual proceeds once the winding up of the old enterprises had been completed.

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<sup>62</sup> See generally, Note, "FNMA and the Rights of Private Investors: Her Heart Still Belongs to Daddy," *Georgetown Law Journal*, Vol. 59 (November 1970), pp. 369–92; Note, "Personal Liability of Directors of Federal Government Corporations," *Case Western Law Review*, Vol. 30 (summer 1980), pp. 733–79; and sources cited in Thomas H. Stanton, *A State of Risk* (New York, NY: HarperCollins, 1991), Appendix A, "Laws, Cases, and Other Legal Sources on Government Sponsored Enterprises," pp. 201–210.

<sup>63</sup> Sallie Mae has proposed a holding company option along these lines. Sallie Mae, *Restructuring Sallie Mae*, *supra* note 15, at pp. 5–6. Sallie Mae envisions a 7–10 year timeframe for completing the restructuring process.

The law also would address the issue of any exit fee. The legislation to accomplish restructuring would include protective provisions to permit shareholders to receive fair value for their stake in outstanding GSE stock while preventing them from impeding the process of removing GSE status from Fannie Mae and Freddie Mac.

OFHEO would be responsible for overseeing the safety and soundness of the liquidating subsidiary; the OFHEO enabling legislation would be strengthened, for example, to impose strict and easily enforceable limitations upon the amount of interest rate risk that would be permitted for the liquidating subsidiary and to permit OFHEO to appoint a receiver if the government's risks began to rise during the transition period.<sup>64</sup>

There are many advantages to this process. First, today's shareholders would retain an ownership stake in the old companies until they were wound up; in return the shareholders would receive the residual value of the companies and be rewarded for capable management. Second, the government could oversee this process without difficulty and would not need to monitor closely the value of intercorporate transactions as long as measurable progress was being made in liquidation and appropriate capital remained in each liquidating subsidiary. It will be important to subject this option to considerable scrutiny to assure that the process in fact creates compatible incentives between the government and shareholders to wind up the old companies as efficiently as possible.

The disadvantage to this process relates to the problems that can arise if managers have the incentive and ability to prolong the liquidation process,<sup>65</sup> if liquidation somehow stops, or if the new parts of the company somehow get into financial difficulty before liquidation is complete. It could take 5 or 10 years, or even longer (depending upon the level of interest rates and prepayments), to run off the liabilities and MBSs of Fannie Mae and Freddie Mac.

During the possibly lengthy transition period, it will be necessary to create so-called firewalls between the liquidating GSE subsidiary of the holding company, whose obligations are outstanding with agency status, and the new operating company subsidiaries that are supposed to operate without any perception of government backing.<sup>66</sup> It will be important that the government be protected

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<sup>64</sup> Other useful changes to the OFHEO authorizing legislation would provide the regulator with the relevant panoply of enforcement and other powers now available to federal bank and thrift regulators (for example, in 12 U.S.C. Section 1818), without the current limitations in the OFHEO legislation that could impede prompt and effective supervisory action.

<sup>65</sup> Such adverse incentives manifested themselves in a somewhat different context in the Management Consignment Program established by the Federal Savings and Loan Insurance Corporation to deal with insolvent thrift institutions. See R. Dan Brumbaugh, Jr., *Thriffs Under Siege: Restoring Order to American Banking* (Cambridge, MA: Ballinger Publishing Company, 1988), pp. 103–107.

<sup>66</sup> Restructuring through use of a holding company should be conducted with due regard for the statement by Walter Wriston, the former Chairman of Citicorp: "It is inconceivable that any major bank would walk away from any subsidiary of its holding company. If your name is on the door, all of your capital funds are going to be behind it in the real world. Lawyers can say you have separation, but the marketplace is persuasive, and would not see it that way." *Financial Institutions Restructuring and Services Act of 1981*, Hearings before the Senate Committee on Banking, Housing and Urban Affairs, 1981, cited in

(continued...)

against unforeseen circumstances that might somehow cause liquidation to stop; such a contingency would pose the risk that the perceived implicit government backing for the liquidating GSE subsidiary might spread to other parts of the holding company structure and begin to support business activities that essentially have no public purpose. Moreover, if liquidation somehow stops, then the prospects for protracted litigation and political conflict could escalate significantly.

Discussions with financial experts indicate that it should be possible, as a technical matter, to draft legislation and craft implementing legal documents that permit each new business subsidiary of the holding company to obtain “stand-alone” ratings from the rating services. Such ratings would be based solely upon the financial strength of the subsidiary that issues the obligations, without regard to the implicit government guarantee that may be perceived to attach to a separate liquidating subsidiary of the same holding company.<sup>67</sup>

### **B. Permit Fannie Mae and Freddie Mac Shareholders To Take Some Capital, Management, and Systems To Buy or Establish New Companies; Liquidate the Old GSEs**

Under this alternative the shareholders of Fannie Mae and Freddie Mac would exchange their GSE stock for shares of a new company operating under general state laws plus rights to any residual value from liquidation of the GSEs. The shareholders would be permitted to take a specified amount of capital from the GSEs to capitalize the new companies and would be permitted to transfer other resources (largely management and systems) as well; they would leave the remaining capital and systems (and, at the option of the government, managers) to support the liquidation of the old GSEs. The GSEs would cease new business operations, and the government, either directly or by contract, would be responsible for winding up their activities.

The law would specify the level of capitalization to be maintained in the liquidating GSEs as protection against losses and would authorize distribution to shareholders of any surplus from winding up the old GSEs. Again, the legislation to accomplish restructuring would include protective provisions to permit shareholder litigation over issues of property rights without disrupting the restructuring process. It also would specify that shareholders would not have a taxable event because of the restructuring and would address the issue of an exit fee. Figure 3 shows this option in schematic form.

As with the first alternative, agency attributes would be left in place for liabilities and MBSs outstanding on the transition date. The obligations would then be defeased, paid off, or repurchased

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(...continued)

Samuel H. Talley, “Bank Holding Companies: A Better Structure for Conducting Universal Banking?” in Dimitri Vittas, ed., *Financial Regulation: Changing the Rules of the Game*, The World Bank, 1992.

<sup>67</sup> Indeed, commentators noted that it may be more difficult to insulate the credit rating of the new operating subsidiary from adverse effects of its affiliation with the liquidating subsidiary than to insulate it from positive effects of such affiliation. A rating service would need assurance that (aside from any explicit contractual provisions at the time of restructuring) the government would never try later to claim assets from the new successor operating companies to satisfy losses that might arise unexpectedly from the liquidation of the GSE subsidiary.

**FIGURE 3**

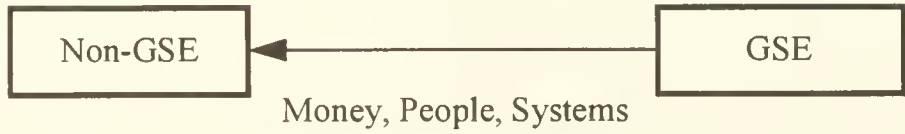
**Separate Company Option**

**Today**

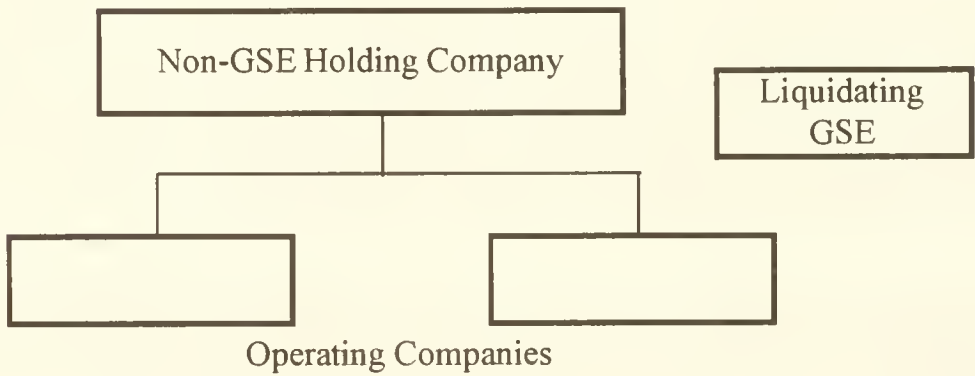


**Transition**

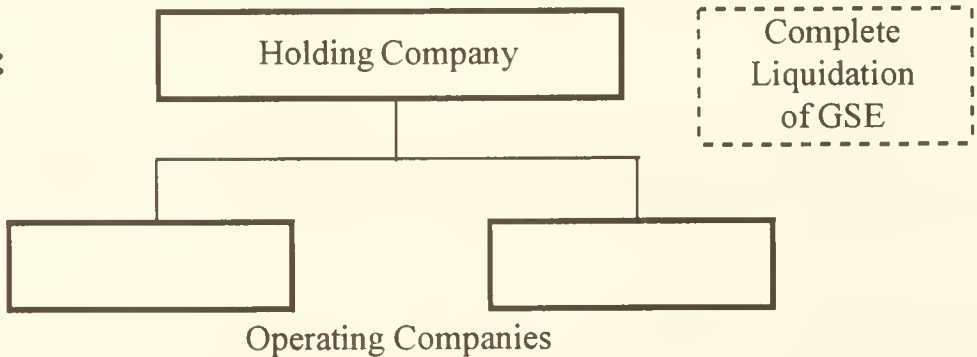
**Step 1:**



**Step 2:**



**Step 3:**





as quickly as is permitted by the terms under which they were issued; the MBSs would be retired or repurchased. Assets of the two enterprises would be sold in large amounts to private companies (including—if they desired to bid—the new business firms established by Fannie Mae and Freddie Mac shareholders).

One advantage of this option is that it creates completely new companies and thereby reduces the danger that the government's perceived implicit guarantee or any other aspects of the financial condition of the liquidating companies might affect the financial circumstances of the new successor companies.

A second advantage is that this option permits the government potentially greater opportunity to shape a competitive residential mortgage market by selling assets in large amounts to a number of private companies that could then become large-scale issuers of their own (private-label) MBSs.

Moreover, instead of permitting today's managers of Fannie Mae and Freddie Mac to liquidate the GSEs, this option permits the government to sell the rights to the highest bidder qualified to manage the liquidation process. If the enterprises were liquidated by a private party under contract to the government, it might be possible to use OFHEO to help supervise that contract. Of all agencies of the federal government, OFHEO is likely to have the most expertise and assuredly the most extensive knowledge of the business activities and systems of Fannie Mae and Freddie Mac.

This option would have a major disadvantage if it resulted in any discontinuity in the operations of Fannie Mae and Freddie Mac. Restructuring of the companies under this option would need to proceed in such a way that a smooth transition would take place so that Fannie Mae's and Freddie Mac's managers and systems would continue to function in the new companies while permitting an efficient liquidation of the old GSEs.

The other issue involves management of the liquidating companies. If the winding down of the GSEs is to be done in entities that are completely separate from the successor private companies, then the government must provide for capable management of the liquidation process. This has been done before, in liquidations of insolvent financial institutions closed by the federal government. Among the propositions that need to be explored are (1) whether the market can easily value the opportunity to manage the liquidation process or (2) whether the current managers of Fannie Mae and Freddie Mac have such natural advantages over other bidders that they should be permitted to manage the liquidating process.

### **C. Breakup of Fannie Mae and Freddie Mac Into Smaller Operating Companies That Are Then Restructured To Remove GSE Status**

This option would involve a two-step process that would be undertaken virtually at once. The first step would involve a Standard Oil-type breakup of Fannie Mae and Freddie Mac into a number of competing companies. A variety of technical alternatives could achieve the result of

**FIGURE 4**

**Breakup and Restructure Option**

**Today**



**Step 1:**

**Breakup**



**Step 2:**

**Use holding company or separate company options to complete restructuring of each separate GSE.**

breakup-plus-restructuring. For example, shareholders of Fannie Mae and Freddie Mac might receive stock in each of the several successor companies created by the breakup.

Those companies would have GSE status; however, the second step would take place so that the new firms immediately would be restructured into (1) a number of new companies that were chartered to operate without GSE status and (2) liquidating the GSEs to run off the old business of the current GSEs. (This would be done through a holding company structure or through separation, depending upon the approach selected.) Figure 4 shows this option in schematic form.

The breakup option offers several advantages. Breakup would mean that promptly after restructuring, a number of new firms would be competing in the residential mortgage market; breakup also would mean that none of these firms (even if affiliated with a liquidating GSE through a holding company structure) would be of a size that made it somehow “too big to fail.”

The disadvantages of this option relate to issues concerning financial diversification, operating efficiencies, and economies of scale. First, smaller companies may lack some of the benefits of geographic or product diversification that are available to larger firms. Second, if there are economies of scale—for example, in supervising mortgage servicing by primary lenders—then a breakup could add significantly to operating costs of the new successor firms to Fannie Mae and Freddie Mac. Third, it may be difficult to clone operating systems so that a large group of successor firms all are able to use today’s state-of-the-art systems for loan administration. Again, other researchers will need to explore these practical issues and the extent to which they could affect market efficiencies.

Perhaps the most serious disadvantage of this option is the way in which it makes the restructuring process more complicated. Such complications could increase the chance of a misstep at any one of the successor institutions (for example, because there may not be enough high-quality managers immediately available who would have sufficient breadth or depth of experience to run a successor company without mishap).

Finally, it is not clear that a breakup is required to assure that the successor market to Fannie Mae and Freddie Mac would consist of a number of competing firms that would not appear to be “too big to fail.” A number of competitors already exist in the secondary market for nonconforming loans and in the primary market that would seem able and willing to enter the market now dominated by Fannie Mae and Freddie Mac. To the extent that such potential entrants exist, then the breakup option loses advantage over the other forms of restructuring.

#### **D. Restructuring Accompanied by Creation of a New Federally Chartered Corporation To Carry Out Public Purposes**

Under this option the restructuring of Fannie Mae and Freddie Mac would result in new private companies operating under applicable law and liquidation of the old enterprises, as envisioned in the other three options just discussed. This option would add one new element: It would provide for creation of a new federally chartered corporation to carry out public purposes that otherwise

might not be carried out by the successor companies to Fannie Mae and Freddie Mac. This option would merit consideration primarily if further analysis were to indicate that there are public purposes that are served by the GSEs today that would not be served by successor companies and other firms after restructuring.

The new federal corporation might resemble the National Consumer Cooperative Bank, for example. It could be funded with an initial contribution to capital (as a grant or loan) that was provided from proceeds of the restructuring process (as a form of exit fee) or from federal appropriations. The new corporation might use its funds to serve as a type of revolving fund to help subsidize mortgage loans for low-income homebuyers and renters; alternatively, it might function in a manner similar to the way in which the College Construction Loan Insurance Association (Connie Lee) operates and provide insurance for limited categories of state and local bonds that fund housing for low-income people.

There is precedent for such creation of complementary institutions. The 1968 legislation that converted Fannie Mae for sale to private shareholders provided for Ginnie Mae to remain in the government and also created the National Corporation for Housing Partnerships to provide private sector support for housing.

This option separates the large-scale activity of providing mortgage money to middle-class homebuyers on a self-sustaining basis that is provided by today's Fannie Mae and Freddie Mac from the efforts of the two enterprises to provide support (again on a self-sustaining economic basis) for low- and moderate-income housing. The former activities would be carried out by the private firms competing in the residential mortgage market, presumably including successor companies to Fannie Mae and Freddie Mac, while the latter could be addressed through the new federal corporation.

The advantage to this approach is that it provides for meeting public purposes without maintaining more than \$1 trillion of securities whose agency status creates a perception of implicit taxpayer liability for operations of two of the largest financial institutions in the world.

The disadvantage to this approach would arise if federal budget constraints limited the new federal corporation so that it would not have the capacity to support low-income housing to the extent that Fannie Mae and Freddie Mac support such housing today. One useful area of inquiry relates to the extent that particular functions, such as the role that Fannie Mae and Freddie Mac play with respect to oversight of the fair lending practices of primary lenders, can be replaced by additional measures, such as possible legislation to make applicable fair lending requirements more uniform across types of lenders.<sup>68</sup>

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<sup>68</sup> Policymakers might also contemplate a variant on this option. In concept at least, it may be possible to enact legislation that requires mortgage market institutions to provide a specified amount of financial support annually to support the Affordable Housing Program of the Federal Home Loan Bank System or, alternatively, to support a similar program that would be funded by institutions that are not members of the System.



## E. A Longer Term Transition

Under this option the Congress would legislate now to provide for restructuring that would be completed after a long transition period. Then legislation might provide for a number of phase-in changes:

- In the first phase, the GSEs would be permitted to accumulate earnings that, so long as they exceeded capital requirements imposed by law, could be used to capitalize new operating companies in the future.
- In the second phase, the conforming mortgage limits would be frozen and perhaps subjected to a new formula that would reduce them over the transition period; other restrictions might be imposed on selected lines of business (e.g., purchases of home equity loans). In return the GSE managers would be permitted to capitalize new operating companies that would operate without GSE status but that would be limited to serving the residential mortgage market.
- In the third phase, restructuring would take place along the lines presented in one of the first two options above, perhaps supplemented by creation of a new government corporation or other federal support for underserved parts of the mortgage market.

The benefit of this option is that it takes account of the fact that Fannie Mae and Freddie Mac today enjoy federal charters whose value is substantially enhanced by the legal privileges that they convey. It also recognizes that circumstances change, both in the markets and in federal legislation, and that the GSEs themselves may benefit from protection against uncertain adverse developments.

The changes that buffeted the thrift industry starting in the 1970s provide the most extreme example of the costs of failing to anticipate developments that could reduce the value of a special-purpose charter. Sallie Mae provides an example of the need to anticipate adverse political circumstances. When the Reagan administration made a determined effort to impose a 5-basis-point user fee, Sallie Mae and the other GSEs were able to prevent its imposition; yet a few years later, in the Student Loan Reform Act of 1993, the Congress imposed a 30-basis-point fee that Sallie Mae was unable to resist.

This option uses the long transition period for two purposes: (1) to help the market to adjust to the changes caused by restructuring, and (2) to place the changes so far in the future that their present value (cost or benefit) is small from the perspective of today's GSE managers and shareholders, compared to the benefit of assuring a smooth transition.

The disadvantages of this option are (1) the delay of a restructuring process that—if it has value—arguably should be begun promptly rather than postponed, (2) the possibility that various political constituencies could use the long phase-in period to marshal strength to urge the Congress to repeal the restructuring legislation and preserve the status quo, and (3) the fact that, absent some clear adverse events in legislation or the marketplace, the GSEs and their managers may not perceive an incentive to plan for a restructuring to eliminate a comfortable status quo that they may currently enjoy.

## V. PARTIES WITH INTERESTS AFFECTED BY RESTRUCTURING

Parties with a stake in the restructuring of Fannie Mae and Freddie Mac can be categorized into several groups: (1) the American people and government; (2) the enterprises, their shareholders, managers, and employees; (3) investors in obligations and securities with implicit government backing; (4) other creditors; (5) parties doing business with Fannie Mae and Freddie Mac, including seller/servicers and investment banking firms; and (6) current and potential competitors of Fannie Mae and Freddie Mac. Within each of these categories are subgroups of interests that may need to be addressed individually.

### A. The American People and Government

The American people have at least two distinct interests in Fannie Mae and Freddie Mac. As homebuyers, people have a stake in an efficient and stable system of residential finance based upon institutions that engage in fair lending practices. As taxpayers, people have a stake in the safety and soundness of the GSEs or any successor institutions. These interests of the American people and government are paramount in any discussion of the future of Fannie Mae and Freddie Mac.

### B. Fannie Mae, Freddie Mac, and Their Shareholders, Managers, and Employees

Fannie Mae and Freddie Mac are owned by private investors. There are a number of classes of shareholders, including holders of common and preferred stock, and possibly subclasses of these. Further study is merited with respect to special kinds of shareholders, such as financial institutions that are permitted to hold Fannie Mae and Freddie Mac stock without regard to the otherwise applicable investment limitations.<sup>69</sup> Shareholders will want to obtain a provision in any restructuring legislation that treats the reorganization and an exchange of their shares of stock as a nontaxable event.

Shareholders have the right to the benefits of their property without an unfair taking by the government. Indeed, shareholders in state-chartered corporations have a right to sue the corporation itself if they believe that management is negotiating an outcome that is not in the best interests of shareholders. The standing of shareholders of Fannie Mae and Freddie Mac to bring suit in such an action is not as clear. In any negotiations with respect to corporate restructuring, directors and management have the fiduciary responsibility to represent the interests of the corporation and its shareholders.<sup>70</sup>

The difficulty of appraising the value of a share of stock contributes to the likelihood that a restructuring may be accompanied by shareholder litigation. Under the laws of many states, even if

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<sup>69</sup> See, for example, 12 U.S.C. Sec. 1464 (c)(1)(D) and (E), authorizing federal savings and loan associations to hold Fannie Mae and Freddie Mac stock “[w]ithout limitation as a percentage of assets.”

<sup>70</sup> Note, in *Case Western Law Review*, *supra* note 62, at pp. 733–79.

a majority of shareholders formally accept the terms of an exchange of stock pursuant to restructuring, dissenting shareholders may claim the right to sell their shares for fair (appraised) value.

The absence of federal corporation law to govern the rights of shareholders raises further complexities. In principle it should be possible for the Congress to deal with these complexities through special legislation. For example, the legislation might provide that any successor general-purpose companies (including any holding company created in the process of restructuring) shall be governed by the laws of the state (or the District of Columbia) where they are incorporated.

In practice there is the chance of a legal challenge regardless of what the Congress does. One problem in past restructurings has been the protracted nature of litigation.<sup>71</sup> The legislation needs to be designed to accommodate such litigation so that shareholders are assured a fair process for valuing their ownership stake but are precluded from having a legal cause of action that allows litigants to impede the process of restructuring.

In a 1977 memorandum provided to the Senate Banking Committee, Fannie Mae's outside counsel argued that the Congress would be acting unconstitutionally to impair the property rights of Fannie Mae shareholders if it made substantial changes to the Fannie Mae Charter Act (in that case to diminish shareholder control of the corporation's board of directors).<sup>72</sup> The memorandum argued that the Congress in 1968 enacted legislation to sell Fannie Mae stock to the investing public. "The 1968 Charter Act is a contract between the Federal Government and FNMA's shareholders and directors."<sup>73</sup>

The memorandum points out that, in the 1968 Charter Act, the Congress gave assurances to investors in Fannie Mae and that investors relied upon those assurances when they invested their money and bought stock. These contractual rights are protected from impairment by the Fifth Amendment to the United States Constitution.

Since that memorandum was written, a number of cases have focused upon the takings clause of the United States Constitution to make such arguments in a variety of contexts.<sup>74</sup> Of particular

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<sup>71</sup> In the case of the liquidation of the Union Pacific Railroad, a federally chartered corporation, a historian writes: "The reorganization of a railroad is a complicated affair. In most cases the reordering of corporate finances involves some fierce infighting among the various classes of interests....And since large sums of money can be made from the process of reorganization, bankers, lawyers, and financiers circle the carcass like vultures eager to snatch off their pound of flesh. Suits by disgruntled minority holders or holdups by predators can delay the work for months or even years." Maury Klein, *Union Pacific: The Rebirth 1894-1969* (New York, NY: Doubleday, 1989), p. 16.

<sup>72</sup> Memorandum, Law Offices of Williams & Connolly, to James E. Murray, Senior Vice President and General Counsel, Fannie Mae, June 3, 1977 (an opinion on the constitutional implications of S. 1397, introduced April 27, 1977).

<sup>73</sup> *Ibid.*, p. 15.

<sup>74</sup> See, for example, Christopher T. Curtis, "The Takings Clause and Regulatory Takeovers of Banks and Thrifts," *Harvard Journal on Legislation*, Vol. 27, No. 2 (1990), pp. 367-390. Curtis examines the takings issue in the context of a new  
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interest is a recent case in which the court rejected a constitutional challenge and held that it was proper for the Congress to enact legislation that required financially sound institutions of the Farm Credit System to contribute funds to the bailout of the System after it failed financially in the mid-1980s.<sup>75</sup>

In this context it is noteworthy that shareholders of other GSEs, the Federal Home Loan Banks in 1989 and Sallie Mae in 1993, did not file suit to challenge congressional actions that substantially diminished shareholder value in the enterprises. In the late 1980s, the Congress legislated to take several billion dollars of retained earnings of the Federal Home Loan Bank System to help fund the savings and loan cleanup. That action would seem to be a fairly direct taking from shareholders.

The application of the Constitution to such cases may relate to the distinctive nature of the federal charters of GSEs and the way that they imply some limitations upon the traditional rights of shareholders. One can consider here the charters of Fannie Mae and Freddie Mac. First, the Fannie Mae charter provides that the corporation shall have succession (i.e., shall continue its corporate existence under the charter) until dissolved by Act of Congress.<sup>76</sup> A court is likely to infer that such a limitation applies to Freddie Mac as well. It would be difficult for a court to decide in the alternative, namely that, once the Congress enacted legislation to create a corporation, then the charter legislation must be kept in existence in perpetuity.

Second, once a court agrees that the government may enact legislation that dissolves a GSE, then it becomes easier to assume that the Congress has lesser powers as well, including the power to restructure the corporation after taking account of the legitimate interests of the corporate owners. Relevant in this regard is litigation concerning the Union Pacific Railroad, a federally chartered corporation, which indicates that the Congress has the power to make significant changes to the terms of charter legislation, but that there are some bounds (relating to fairness to shareholders, but not actually specified by the court) to the lawful exercise of such power.<sup>77</sup>

Third, two cases concerning GSEs would seem to indicate that GSE shareholders may have significantly less ability to sue than if federal law provided expressly for the rights and remedies that

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approach by federal regulators that involves closing troubled banks or thrifts while they still have positive net worth. One could argue that it would not seem to be much of a difference for the government to legislate (so long as the result is not oppressive to shareholders) to deal with the taxpayer exposure posed by companies such as Fannie Mae and Freddie Mac that have positive net worth, but are capitalized at levels far below other financial institutions.

<sup>75</sup> *Colorado Springs Production Credit Association v. Farm Credit Administration*, 967 F2d 648 (DC Cir., 1992).

<sup>76</sup> Fannie Mae Charter Act, Section 302(a)(2)(B), 12 U.S.C. Sec. 1717(a)(2)(B).

<sup>77</sup> See, e.g., *Union Pacific Railroad Co. v. United States (Sinking Fund Cases)*, 99 U.S. 700 (1878).



are available under state laws to shareholders of corporations formed under state law.<sup>78</sup> One case comes from the Federal Home Loan Bank System. The United States Court of Appeals for the Ninth Circuit held that “shareholders in Federal Home Loan Banks have no vested interest under the statute in the continued existence of a particular Federal Home Loan Bank or any legally protected private rights which would enable them to invoke the due process clause.”<sup>79</sup>

The other case involved a challenge to the legal authority of Sallie Mae to acquire a savings and loan association. In that case a United States district court held that shareholders of Sallie Mae do not have standing to challenge acts of the corporation that allegedly exceeded statutory authority under the Sallie Mae Charter Act.<sup>80</sup>

Only modest policy conclusions can be drawn at this point. First, it behooves the government to deal fairly with shareholders of all classes. Second, some shareholders (and—most assuredly—their lawyers) may find it worthwhile to bring litigation to challenge a restructuring. Third, it might tentatively be suggested that restructuring legislation should provide for (1) approval by shareholders and (2) an appraisal-type remedy to evaluate the holdings and compensate objecting shareholders while (3) expressly denying objecting shareholders any right to bring litigation that could impede the consummation of the process of restructuring.

In concept the managers and employees of Fannie Mae and Freddie Mac are supposed to reflect the interests of their shareholders and of the American people on whose behalf the Congress chartered the two companies to serve as federal instrumentalities. In practice, of course, the particular interests of managers and employees may need to be addressed to the extent that they may differ from those of shareholders.

### C. Holders of Obligations and MBSs Issued by Fannie Mae and Freddie Mac

It is easier to value the interests of holders of GSE debt and MBSs than it is to value the investment of shareholders. There are various classes of holders of obligations, including holders of senior and subordinated obligations. Essentially, a restructuring respects the interests of investors in debt and MBSs if it maintains the credit quality of the obligation or security for the entire maturity as agreed in its contractual terms.

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<sup>78</sup> There is additional evidence that helps to bolster this surmise. In August 1994 both Fannie Mae and Freddie Mac reported, in response to an inquiry from the Congressional Budget Office, that they have no record of litigation ever being filed against either company by persons in the capacity of shareholders or holders of other securities issued by either GSE.

<sup>79</sup> *Fahey v. O’Melveny & Myers*, 200 F2d 420, 446 (9th Cir., 1952).

<sup>80</sup> *First American Federal Savings and Loan Association v. Student Loan Marketing Assn.*, No. 84–1014–CIV–5 (typed opinion, E.D.N.C., 1985): “...there is nothing in the legislative history to indicate a congressional intent to create or deny a federal right for damages by the shareholders of SLMA....[T]he court cannot say that it would be consistent with the underlying purposes of the legislative scheme to imply such a right....Defendant is a fundamentally different entity than a private corporation. It was created for the benefit of students seeking loans, not for its shareholders. Its shareholders clearly have an interest in its profitability, but unlike a private corporation, they have nothing to say about what its powers are or will be. Only Congress can make that decision.” (at p. 6.)

In contrast to the complexities surrounding treatment of shareholders, a number of useful approaches are available with respect to these investors. First, the government could simply extend a formal (full-faith-and-credit) guarantee to holders of obligations and securities that today benefit from an implicit federal guarantee. This would provide a windfall to these investors, in the form of credit quality superior to that which they paid for when purchasing their Fannie Mae or Freddie Mac obligations or MBSs. Also, under the Credit Reform Act of 1990, the government would need to estimate the present value of the future cost of claims against the full-faith-and-credit guarantee and to appropriate funds to cover that estimated cost.

Second, the federal government could accomplish a similar result by defeasing the Fannie Mae and Freddie Mac obligations. Defeasance is a process whereby debt is removed from a company's balance sheet—for example, through creation of a trust-type arrangement that provides debtholders with recourse that is at least equal to the value of recourse to the corporation that issued the obligations. Thus, the process of restructuring might include sales of mortgage assets of Fannie Mae and Freddie Mac and use of the proceeds to purchase U.S. Treasury obligations. These obligations (plus additional amounts if they are needed) would be used to defease existing obligations. Depending upon the terms of the restructuring agreement, there might be some provision for the successor companies to contribute to the trust as well. An advantage to the government of this approach might be that outstanding U.S. Treasury obligations could be used, without adding to the existing amount of public debt except for the new U.S. obligations that might be issued to make up possible shortfalls that are not covered by contributions from the new successor companies.

Defeasance is useful to deal with corporate debentures but is not a tool to be used with respect to MBSs. Instead, MBSs might be addressed by (1) retaining the present perceived implicit federal guarantee, (2) winding down the MBS pools as quickly as is permitted by the relevant trust indentures, (3) making purchases of outstanding MBSs, and (4) providing for a contribution from the new restructured corporations to cover the cost of any mortgage substitutions or payment of funds that may be required to satisfy the rights of MBS holders under each trust indenture or other contract.<sup>81</sup>

#### **D. Other Creditors**

Other creditors include vendors and people or firms that otherwise become creditors in the course of doing business with the corporations. It is not clear whether their obligations are backed by a perceived implicit federal guarantee. In any event the amount owed to such creditors is likely to be tiny compared to the immense amount of money owed to debtholders. They are mentioned here so that their interests are recognized.

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<sup>81</sup> A preferable approach to this last requirement would be to negotiate a fixed amount during restructuring, in the context of consideration of allocations of capital and possible imposition of an exit fee. Existence of a potentially open-ended claim from the liquidating GSE upon the successor companies may create an obstacle to the latter's ability to obtain a high investment grade credit rating.

## **E. Sellers/Serviceers, Investment Bankers, and Others Doing Business With Fannie Mae and Freddie Mac**

Firms serving the primary mortgage market that sell mortgages to Fannie Mae and Freddie Mac and service them include mortgage bankers, commercial banks, and savings and loan associations. Many of these seller/serviceers may also be shareholders of Fannie Mae and Freddie Mac. Others in the primary market may include homebuilders who use MBSs to finance their developments.

Fannie Mae and Freddie Mac also do business with members of the GSE selling groups, including investment banking firms and commercial banks that sell Fannie Mae and Freddie Mac securities.

Finally, many other participants in the residential real estate market have a stake in the activities of Fannie Mae, including real estate brokers, private mortgage insurance companies, and providers of real estate settlement services.

The Congress has recognized the stake of some of these parties by providing their representatives with participation on the boards of directors of the two enterprises. The Congress has reinforced the stake of all of these parties by placing legislative jurisdiction over the Fannie Mae and Freddie Mac Charter Acts in the hands of the housing subcommittees of the congressional banking committees. This assures that—whether or not a court recognizes that such parties have standing to sue—their interests must be addressed in any restructuring process.

## **F. Actual and Potential Competitors of Fannie Mae and Freddie Mac**

Competitors of the GSEs have an immense stake in the outcome of restructuring.<sup>82</sup> Many of these competitors also do business with Fannie Mae and Freddie Mac. They too are parties to whom the congressional authorizing committees and subcommittees are likely to be responsive.

It is not clear that competitors have standing to sue under the Fannie Mae and Freddie Mac Charter Acts.<sup>83</sup> On the other hand, they presumably could bring antitrust litigation to challenge any anticompetitive outcome of restructuring that is not protected by state action. This paper assumes that any outcome of restructuring will not involve statutory advantages or disadvantages for the

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<sup>82</sup> For example, it has been reported that commercial banks oppose Sallie Mae's efforts to restructure: "...[T]he banking industry is vowing privately to fight any such move to fully privatize Sallie. Bankers claim an unleashed Sallie Mae would threaten their margins on student loans." Jim McTague, "The Perils of Sallie Mae: Student Loan Agency Squares Off Against Bill Clinton's Pet Project," *Barron's*, April 4, 1994.

<sup>83</sup> Compare the case of *First American Federal Savings and Loan Assn. v. Student Loan Marketing Association*, cited above (note 80), with *Central Bank, N.A. v. Federal Home Loan Bank of San Francisco*, 430 F.Supp. 1080 (N.D. CA, 1977), vacated and remanded on other grounds, 620 F.2d 309 (9th Cir., 1980). The district court in the latter case pointed to congressional intent to preclude the type of competition that plaintiffs alleged.



successor corporations, compared to competitors engaging in similar activities. (See Section II–B, above.)

The interests of competitors are likely to be multifaceted. Some potential competitors may perceive that they benefit more from doing business with Fannie Mae and Freddie Mac today than they will from the more competitive marketplace envisioned after restructuring. Uncertainty about the dimensions of the future may be an important factor for many firms who believe that they are doing well today and who do not know how they will fare after restructuring. Other competitors may believe that, once the statutory playing field has become more level, they will increase their profits substantially by doing business in the secondary market for conforming loans.

## VI. OPTIONS FOR A WORKABLE PROCESS

Because Fannie Mae and Freddie Mac are chartered under federal law, any restructuring will involve new legislation. The question then becomes how to create a process for balancing the many interests and devising a workable plan that can be enacted into law without excessive litigation along the way. Three options are presented here: (1) the Congress enacts a law requiring the enterprises to propose a workable plan for legislative enactment; (2) the Congress itself devises a plan and enacts the enabling legislation; and (3) the Congress enacts legislation defining the parameters of restructuring and directing the executive branch to devise a plan for legislative approval.

### A. Fannie Mae and Freddie Mac Propose a Plan

On a number of occasions, a branch of government leaves it up to the affected corporations to propose their own restructuring plans. Currently, Sallie Mae on its own initiative has suggested restructuring. Earlier, the Grace Commission proposed that the Congress enact incentives for the GSEs to propose such plans:

*“We recommend that agencies [i.e., government-sponsored enterprises] be charged a fee of 5 basis points for the use of [their statutory benefits] and Government affiliation for the first year. The fee would be increased each year that the agency retained Government affiliation. When an agency believed it to be in its best interest, it would petition for legislation to allow it to become completely private. The fee could be either on new borrowings or obligations outstanding. Because outstanding debt has a lower interest cost due to agency status, obligations outstanding was chosen.”*<sup>84</sup> (Italics in original)

In a somewhat different context, the federal antitrust litigation to break up the Standard Oil Company, the court permitted the Standard Oil Company itself to propose the best way to accom-

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<sup>84</sup> *President’s Private Sector Survey on Cost Control*, *supra* note 47, at p. 269.



plish the restructuring into separate companies.<sup>85</sup> (By contrast, the breakup of AT&T involved fact-finding and considerable involvement by the court in the details of the final restructuring plan.)

This approach is based upon the recognition that the enterprises understand their businesses and the interplay of contending interests better than anyone else. They are in the best position to determine how systems and management should be apportioned, for example, between the successor companies and the liquidating GSEs. The prospect of legislative enactment means that the GSEs will not want to propose a plan that fails to take account of the interests of parties (such as competitors) who otherwise will make their influence felt in the Congress during the process of legislative enactment. The Grace Commission suggested a system of progressive incentives as one way to motivate managers to come up with a workable plan.

On the other hand, this approach has potential limitations. First, it acquiesces in today's information asymmetries; the government simply may not have enough information to know whether or not the enterprises have proposed a fair bargain. Some of the other restructuring approaches involve more systematic fact-finding to help overcome the limitations in the quality of information available to government decisionmakers.

Secondly, this approach leaves to the stage of final legislative passage the process of assuring that all politically relevant interests have been addressed. It would seem to be at that point that proposed restructuring faces the greatest obstacles to enactment. Other approaches, discussed below, attempt to address potential political obstacles at an earlier stage of the process.

## **B. The Congress Enacts Restructuring Legislation**

Another option would be for the Congress itself, either on the basis of an initiative from the executive branch or otherwise, to enact legislation to restructure Fannie Mae and Freddie Mac. The advantage of this approach is that it does the job whenever the confluence of political forces is such as to permit a law to be passed and signed by the President. If done well, this approach can include protective provisions that may insulate legislation from opportunistic litigation.

The disadvantages of this option are twofold: First, as the government found during discussions about privatizing Sallie Mae in the 1980s, restructuring legislation may require substantial effort without commensurate perceived benefits. Especially with respect to financial institutions, historians tend to find a pattern of governmental response to pressing events rather than legislation in a proactive fashion to advance conceptual public policy objectives such as the restructuring of two currently profitable GSEs.<sup>86</sup>

Second, legislation can be a messy process, with compromises taking unforeseen forms. Some parties may have a stake in outcomes that grant the emerging restructured companies new

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<sup>85</sup> Yergin, *supra* note 35, at p. 110.

<sup>86</sup> Cargill and Garcia, *supra* note 16, at p. 38.

benefits while others may try to deny them needed powers. If it is flawed, then the quality of the final legislative product may be tested in court or in the marketplace and found wanting. (The late United States Synfuels Corporation provides one example of a misshaped legislative product that failed to survive the test of time.)<sup>87</sup>

### C. The Congress Directs the Executive Branch To Propose a Plan

This option was used by the government to deal with the need to reorganize the failed Penn Central Railroad system in the 1970s. The Regional Rail Reorganization Act of 1973 created a new federal agency, the United States Railway Association (USRA). The Act required the USRA to develop a “Final System Plan” to reorganize assets of Penn Central and other failed northeastern railroads into the newly created Consolidated Rail Corporation (Conrail). The Congress provided for creation of a special court to determine the amount of compensation to be paid for the rail assets and authorized that court to appoint special masters to assist with its work. Under the Act the USRA was to adopt a plan and submit the plan to the Congress. If the Congress failed to disapprove the plan within 60 days, then it went into effect.<sup>88</sup>

This option has a number of attractive features. First, it permits the Congress to define the policy parameters of a restructuring plan in some detail but leaves the application of those details to an expert agency. Second, it permits the Congress to review and disapprove the plan, but only on an all-or-nothing basis (with provision for resubmission of new plans if there is disapproval). This permits congressional redress by any party that believes itself aggrieved, but prevents the Congress from tinkering piecemeal with a plan in a way that might upset balances struck among the contending interests.<sup>89</sup> Third, the enabling legislation includes a carefully crafted provision for judicial review that helps to limit the opportunity for opportunistic litigation (see 45 U.S.C. Sec. 719).

This option has drawbacks to the extent that a government agency is not able to muster the necessary capacity and expertise to produce a workable plan within a reasonable time. Note that the Congress wisely selected the structure of a government corporation for the USRA, thereby freeing the agency from the types of budget, staffing, and other controls that stifle the effectiveness of many government agencies today.

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<sup>87</sup> A good summary of the statutory features of the United States Synthetic Fuels Corporation is found in Ronald C. Moe, *Administering Public Functions at the Margin of Government: The Case of Federal Corporations*, U.S. Congressional Research Service, December 1, 1983, pp. 282–295.

<sup>88</sup> See, e.g., Walter H. Brown, Jr., “Introduction: A Review of the Penn Central Reorganization Proceeding,” *The Business Lawyer*, vol. 36 (July 1981), pp. 1903–1915; National Academy of Public Administration, *The Great Railway Crisis: An Administrative History of the United States Railway Association*, 1978; Moe, *supra* note 87, at pp. 273–281.

<sup>89</sup> The decision in *Immigration and Naturalization Service v. Chadha*, 462 U.S. 414, 103 S.Ct. 2764 (1983), means that congressional disapproval must be expressed in the form of enactment of legislation that actually becomes law.

## VII. CONCLUSION

This paper is based upon review of the experiences of the government with federal corporations dating back to the first and second Banks of the United States and the processes that have been applied to restructure companies to deal with insolvency or apply the antitrust laws. While useful lessons can be drawn from those experiences and processes, the restructuring of Fannie Mae and Freddie Mac would be a distinctive event. Therefore, the research for this paper has also included interviews with knowledgeable people in government and the private sector, including discussions with people at the GSEs.<sup>90</sup>

The research and interviews conducted for this paper lead to the conclusion that a well-conceived process can address the technical complexities of removing GSE status from Fannie Mae and Freddie Mac in a way that accomplishes the transformation efficiently and effectively. Far more important for a successful restructuring of the secondary mortgage market is a political consensus that such change is desirable. Then the technical solutions will follow.

If there is no political consensus regarding desirability of removing GSE status from Fannie Mae and Freddie Mac in the near term, then policymakers may want to consider legislation that today establishes a framework for such action in the more distant future, say in 10 or 15 years. Such legislation could provide for a smooth transition that benefits the marketplace as well as today's two housing GSEs and their managers and shareholders.

Some years ago, a Freddie Mac task force expressed this opinion as to the restructuring of Fannie Mae and Freddie Mac:

“Transferring functions and resources raises many complex financial, economic and legal questions that can only be addressed with careful analysis and discussion. Task Force discussion of possible transition strategies made it clear that dealing properly with these issues is a time consuming process, necessitating the counsel of certain specialized financial and legal experts. What the end result should be, however, is clear. There should be a plan that encompasses a series of actions set forth in a timetable that expedites but does not hurry the process.”<sup>91</sup>

The changes in Fannie Mae and Freddie Mac in intervening years have made restructuring into a much larger and a more complex conceptual effort than was contemplated by that task force. On the other hand, if there is indeed an ascertainable lifecycle of the GSEs, then the processes involved in restructuring—daunting as they seem to be—deserve careful thought and analysis.

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<sup>90</sup> The author wishes to express gratitude to the people who gave generously of their time and insights to add to the quality of this study. Of course, responsibility for the paper and its findings and conclusions rests solely with the author.

<sup>91</sup> Advisory Committee to the Board of Directors of the Federal Home Loan Mortgage Corporation, *supra* note 33, at p. 41.



## FANNIE MAE REVIEW OF THE STANTON PAPER

The Stanton paper, “Restructuring Fannie Mae and Freddie Mac: Framework and Policy Options,” departs from the initial CBO request for legal analysis of the fundamental structural issues associated with full privatization. With more than half the Stanton paper devoted to argumentation for advancing a “restructuring” plan (which is Stanton’s term for full privatization), it is a significantly political document. Though neutral on the choice of restructuring options, the Stanton paper takes a clear advocacy position that a restructuring plan *should* be pursued.

In so doing the paper provides a simplistic review of the issues. By defining the mission largely in terms of past successes, the Stanton paper implies that Fannie Mae and Freddie Mac are behemoth anachronisms. Misplaced reliance on the Sallie Mae experience reinforces the impression of the inevitability of making Fannie Mae and Freddie Mac fully private. While acknowledging the complexity of the matter, the Stanton paper evades the complex issues with conclusory statements and assurances that once the political decision is reached, “the technical solutions will follow.”

Serious analysis of how full privatization could be accomplished must assess the very issues the Stanton paper glosses over. What does it mean in dollars and cents, to treat shareholders “fairly”? What volume of Fannie Mae and Freddie Mac securities are held by state and local governments, pension funds, insured depository institutions, and other financial institutions, and how would their losses affect the financial system and taxpayers overall? What basis is there to assume a fully private Fannie Mae and Freddie Mac would remain in any of the businesses the Stanton paper identifies? While legislation can address shareholder rights, as a constitutional matter can Congress ever preclude litigation being *brought*, and tying up restructuring for years—regardless of the final disposition of the case?

To provide a more sound basis for informed debate, this paper attempts to fill the most conspicuous omissions in the Stanton paper. Section I examines Stanton’s policy conclusions about the need for full privatization and supplies a more balanced context for examining the issues. Sections II and III examine related discussions in the Stanton paper concerning the history of Fannie Mae privatization and the recent Sallie Mae experience. Section IV examines the legal implications of restructuring.

### I. THE CASE FOR FULL PRIVATIZATION

#### A. Mission

The Stanton paper makes short shrift of Fannie Mae’s and Freddie Mac’s ongoing role in the market.<sup>1</sup> In so doing it supports its own premise that the end of our “lifecycle” may already be underway, and therefore a plan for achieving full privatization should be put in place. The suggestion

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<sup>1</sup> See Section II [pp. 6–16] of the Stanton paper.



is indeed contrary to fact, as Fannie Mae and Freddie Mac maintain an integral and dynamic role in today's housing finance system; now more than ever we are called upon to provide solutions to the nation's housing issues.

The following is a summary description of some of Fannie Mae's historic and ongoing responsibilities, intended only as a response to the Stanton paper's suggestion that our role may be diminishing.

Fannie Mae ensures a *continual source of housing funds*. We are in the market, in *all* areas of the country, *every* day.

During times of volatility, Fannie Mae maintains a steady presence in the market that helps *maintain stability* in the housing finance delivery system. During the 1981–82 recession, Fannie Mae provided a continuing source of funds for homebuyers, and helped many mortgage lenders and builders survive. Again in 1986, when the “energy belt” experienced a severe downturn, Fannie Mae remained in the market, financing one in five mortgages in Texas alone. The financing we made available helped prevent a further downward spiralling of home prices and economic conditions. Similarly, we remained in the market during the spring of 1987 when mortgage interest rates rose 150 basis points in 6 weeks and other firms chose to withdraw until markets settled down. We did not leave New England; we remained in California.

Stanton affirms that Fannie Mae and Freddie Mac have had an important role in smoothing out “market imperfections”—redistributing capital to capital-poor areas of the country. Stanton points to this success as a primary reason that Fannie Mae and Freddie Mac may soon be no longer needed. And he suggests that changes in interstate banking and other laws further contribute to the diminished need for smoothing out market imperfections.<sup>2</sup>

But the removal of interstate prohibitions does not obligate lenders to serve all parts of the country. And in times of economic distress, it was not interstate banking restrictions that caused market participants to drop out. Rather, it was economic considerations and the fact that other market participants do not share Fannie Mae's and Freddie Mac's statutory obligation to serve housing. These factors have not changed.

In its 1991 report, CBO makes this point specifically, noting: “Private firms probably would not give all borrowers served by the GSEs in all regions access to credit at all points in the business cycle...”<sup>3</sup>

Another important “market imperfection” the Stanton paper fails to mention at all. One of Congress' and the administration's housing priorities has been to promote lending in underserved markets. Indeed, Congress identified “central cities, rural areas, and other underserved areas” as

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<sup>2</sup> Ibid., [p. 12].

<sup>3</sup> U.S. Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* 16 (April 1991).

warranting targeted lending, and included them as a part of Fannie Mae’s and Freddie Mac’s statutory housing goals. In 1994, Fannie Mae provided financing for more than 618,300 families in central cities and more than 828,400 low- and moderate-income families. A more detailed discussion of central cities, underserved markets, and affordable housing is included in pages 53–55 below.

The Stanton paper acknowledges that Fannie Mae and Freddie Mac *reduce mortgage interest rates*, but because this point was debated during the seminar on the Stanton paper, it warrants further emphasis here.

Our federal charter, in combination with other factors—such as how private management operates the business, the size of the business, and our role in the housing market—leads the capital markets to price our MBS at lower yields and to enable us to borrow large sums with attractive interest rates. In turn, we are able to pass on lower mortgage interest rates.

CBO’s 1991 report agreed:

“Competition between the GSEs and among the lenders they serve passes this benefit on to borrowers and has reduced the interest rates on fixed-rate mortgages that the enterprises can purchase by about 0.3 percentage point (30 basis points).”<sup>4</sup>

Again in its 1993 report on the Federal Home Loan Bank System, CBO affirmed:

“The activities of Fannie Mae and Freddie Mac have brought some obvious benefits to borrowers in the housing market...their emergence as major players in the home mortgage markets lowered the interest rates on fixed-rate conforming mortgages in 1986 by about 30 basis points relative to those on mortgages above the conforming limit.”<sup>5</sup>

Similarly, in the administration’s budget submission for fiscal year 1992, OMB noted:

“...studies have found that mortgage rates are 25 to 50 basis points lower because Fannie and Freddie exist in the form and size they do.”<sup>6</sup>

The Cotterman-Pearce paper, “The Effects of the Activities of the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation on Conventional Fixed Rate Mortgage Yields,” prepared for a subsequent seminar, also affirms this point, estimating a 20- to 35-basis-

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<sup>4</sup> Ibid. at xxix.

<sup>5</sup> U.S. Congressional Budget Office, *The Federal Home Loan Banks in the Housing Finance System* 8 (July 1993).

<sup>6</sup> U.S. Office of Management and Budget, *Budget of the United States Government FY92 229 Part II* (1991).

point increase in conforming loan rates if Fannie Mae and Freddie Mac were to become fully private.<sup>7</sup>

Another specific and ongoing contribution is the *standardization, uniformity*, and resulting *liquidity* we have brought to mortgage finance. In so doing we attract new capital to housing, in turn reducing the cost of mortgage financing, and strengthening the market overall. On the consumer side, this means the availability of a vast array of mortgage products—including special targeted products and consumer safeguards—to all borrowers nationwide, under the same terms regardless of local economic conditions.

Fannie Mae and Freddie Mac have taken housing finance from the vagaries of local credit availability into a nationwide system that is fully integrated into the national capital markets.

CBO's report on the Federal Home Loan Bank System stated:

"The most significant change in the nation's mortgage markets since the 1930s has been the emergence of a large secondary market in which existing home mortgage debt is traded. This market has greatly improved the liquidity of home mortgage lending."<sup>8</sup>

Our unique role in the market maintains an efficient nationwide system of housing finance. Absent Fannie Mae and Freddie Mac in our present form, the market would return to a fragmented and unpredictable system of credit, pricing, and product availability.

Similarly, the administration's budget for 1996 concludes the need for Fannie Mae is not only ongoing, but growing as it states:

"Acting as a national intermediary between homebuyers and world capital markets it [Fannie Mae] provides greater efficiency, liquidity, and reliability in part because of its government ties. In recent years, Fannie Mae has become even more important to effective home finance delivery by assuring depositories ready access to mortgage funds when demand outpaces their deposit or capital base."<sup>9</sup>

In addition to our role in the domestic capital markets, Fannie Mae has *pioneered the acceptance of mortgage-related securities in foreign capital markets*. Overseas investors look to our financial profile, the suitability of our products to their needs, and our special status.

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<sup>7</sup> [In their final text, Cotterman and Pearce conclude that 25 to 40 basis points is the "core range of the conforming loan differential" (p. 102 in this volume), and they provide a discussion of its applicability to the question of the increase in conforming loan rates if Fannie Mae and Freddie Mac were to become fully private (pp. 156–57). —EDITOR.]

<sup>8</sup> U.S. Congressional Budget Office, *supra* note 5, at 3.

<sup>9</sup> U.S. Office of Management and Budget, *Budget of the United States Government FY96* 1118 (1995).

As a result of our efforts to establish overseas markets—familiarizing investors with Fannie Mae securities, and structuring products that match their needs—overseas investors now hold more than 11% of Fannie Mae’s long-term debt and MBS. Our debt offerings abroad allow us to take advantage of lower interest rates. Overall expanded investment in Fannie Mae’s mortgage securities reduces the cost of mortgage financing.

A recent example of Fannie Mae’s efforts to expand international investor opportunities is our \$20 billion global debt facility, the largest in the world. The new funding program will permit the issuance of a wide variety of debt structures in various currencies with a range of call features and maturities, and with access to a number of worldwide clearing systems. It will further enhance our flexibility to meet international investor needs.

Our market *leadership and innovation* have brought sweeping improvements to the mortgage delivery system and, ultimately, the homebuyer. Fannie Mae and Freddie Mac are responsible for the development and success of the conventional mortgage-backed security—perhaps the most sweeping change in the market to date.

As CBO stated in its report on the Federal Home Loan Banks:

“As a result of the securitization of mortgage debt, the market for fixed-rate conforming mortgages has become fully integrated into the nation’s capital markets. This integration has already provided important benefits to the nation’s housing markets. Although large numbers of thrift institutions and banks failed during the past decade, home buyers hardly noticed. They had little trouble securing mortgage credit at favorable rates during this period of institutional restructuring.”<sup>10</sup>

Similarly, Federal Reserve Board Chairman Alan Greenspan, testifying before the Senate Banking Committee in June 1990, explained that the recession had not triggered a “credit crunch” in mortgages as it had elsewhere in the economy because of the role of the secondary market in securitization. He stated:

“In contrast to the situation with commercial real estate, credit market conditions appear more resilient in the market for residential property. The continued flow of credit in residential mortgage markets probably owes to the many alternatives to depository credit. The securitization of home mortgages has become a routine financial transaction.”<sup>11</sup>

The foregoing are some of the dramatic and pervasive changes we have brought about in the mortgage finance system to date. Going forward, it is Fannie Mae’s charge, as a part of our public mission, to direct a significant portion of our creative energies toward meeting the needs that the

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<sup>10</sup> Ibid. at 4.

<sup>11</sup> *Credit Crunch: Hearing before the Senate Banking, Housing and Urban Affairs Committee*. 101st Congress, 2d Session (1990), statement of Honorable Alan Greenspan, Federal Reserve Board Chairman.



fully private sector cannot or will not serve. We have both the ability and the responsibility to invest in and effect change. We will not detail here our ongoing contributions, but simply point out that these responsibilities are dynamic, not static as the Stanton paper implies, and offer the following as examples of Fannie Mae's ongoing priorities.

*Technology*—Manual, paper-based processing of mortgages is costly and time consuming for both the lender and the borrower. These high costs often pose economic barriers to homeownership for low- and moderate-income borrowers and a disincentive for lenders to originate low-balance loans. Fannie Mae is committed to lowering these costs through the use of technology. In conjunction with other market participants Fannie Mae has taken the lead in developing electronic data interchange standards for the mortgage industry. These standards will enable all participants in the industry to communicate electronically using a common format to exchange information. Fannie Mae has also taken the lead in electronic book entry of mortgage ownership. This is a critical strategic initiative for the industry, with an estimated cost savings of \$90 million per year. Further, Fannie Mae has developed a variety of technology tools for lenders. Fannie Mae loan decision software will reduce origination time and cost and enable lenders to originate low-balance loans profitably. Fully private companies do not have an incentive to develop the open systems that Fannie Mae is designing, nor to ensure access to lenders of all sizes so that they may remain competitive.

*Eliminating Discrimination*—Fannie Mae is committed to using its resources and leadership position to eliminate discrimination in housing and mortgage finance. Toward this end Fannie Mae has developed extensive tools that can help lenders identify areas of weakness, and a range of products and services that can help lenders address them. Fannie Mae has also undertaken major efforts to bring potential homebuyers into the system by providing them information, counselling, second reviews, and the overall tools and information they need to qualify for a mortgage. These efforts include: an unprecedented outreach effort to reach aspiring homebuyers, especially minorities, to provide them the information resources they need to buy a home; comprehensive training for mortgage underwriters to ensure they understand and are able to fully utilize the flexibilities in our underwriting guides; underwriting experiments to test the limits of our current requirements and identify further changes or flexibilities that can be added; funding for new and existing community development financial institutions, and for prepurchase counselling programs; second reviews; and using technology to identify ways to lower the costs of originating low-balance loans.

We also have a number of initiatives designed to increase participation of minorities and women in the industry. Our minority- and women-owned lender (MWOL) initiative seeks to extend the benefits of the secondary market to MWOL firms. Fannie Mae is working with the Mortgage Bankers Association to develop our Mentor initiative, which provides training by linking aspiring Fannie Mae MWOL seller/servicers with existing expert Fannie Mae seller/servicers. Our Access initiative is designed to increase the participation of minority- and women-owned firms in the market for Fannie Mae's debt and mortgage securities. Fannie Mae is developing education and training programs to develop minority professional programs that will promote diversity in mortgage finance, and we developed a Summer Scholars

Program to encourage qualified college students from underrepresented minority groups to explore careers in mortgage finance.

*Breaking Down Barriers*—Fannie Mae’s *Showing America a New Way Home* initiative is a \$1 trillion commitment to help make affordable housing and homeownership opportunities available to more Americans. This initiative represents a comprehensive strategy to break down the barriers in the current system, and change the way the housing finance system approaches segments of the market that have not been as well served as the vast majority of the housing market. Some specific components of this sweeping effort are: new products and services tailored to the needs of low-income, first-time homebuyers, new immigrants, seniors, Native Americans, persons with developmental and non-developmental disabilities, and other special-needs homebuyers and renters; multilingual consumer outreach and education assistance; lender training; initiatives to reduce origination costs; underwriting experiments to extend our reach still further; and partnerships with universities to provide training and opportunities that will bring more minorities to the housing finance professions. Many of these efforts are highly labor intensive and costly. The markets for some products are so small that they are unlikely to provide real financial return. The return is, rather, in serving unmet needs and serving our public mission.

*Partnerships with HUD*—HUD, too, looks to us as a partner in a range of new housing initiatives. We joined with HUD in a pilot program to improve consumer safeguards on reverse annuity mortgages for seniors, and expand the availability of these mortgages. In 1994 we announced a multifamily risk-sharing initiative in which HUD and Fannie Mae jointly insure multifamily housing. This initiative will finance 7,500 apartments, and the approach is now being explored in connection with single-family central cities and low- and moderate-income housing. Fannie Mae is also expanding the market for HUD’s rehabilitation loans by providing a secondary market for these products, such as FHA 203(k) and Title I loans. Fannie Mae has joined HUD in its homebuyer counseling and outreach efforts, providing training and technology support. Fannie Mae has facilitated industry-wide discussions to leverage federal funds so that funds for the homeless are more efficiently utilized, and we have conducted national open training sessions for HUD to aid prospective applicants to HUD’s Empowerment Zone and Enterprise Community programs. As reorganization and consolidation of HUD’s responsibilities continues, we expect still greater demand for and reliance upon our expertise and resources.

In the face of continually growing needs and limited direct federal resources, Congress looked to Fannie Mae and Freddie Mac to play an expanding role. The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSSA)<sup>12</sup> codified and expanded Fannie Mae’s and Freddie Mac’s role specifically to include serving central cities, rural and underserved markets, and to further define our affordable housing responsibilities. The law requires us to direct a specified percentage of our business to: low- and moderate-income families; special affordable housing (i.e.,

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<sup>12</sup> Pub. L. 102-550 (1992), 106 Stat. 3994, at Section 1381, Subsection (a)(4), 12 U.S.C. § 4641.

housing for low-income families in low-income areas and very low-income families); and central cities, rural areas, and other underserved areas.<sup>13</sup> Moreover, our charter contemplates “a reasonable economic return that may be less than the return earned on other activities...”<sup>14</sup> We are exceeding our statutory goals—some by great measure. And we have set goals for ourselves that extend far beyond our regulatory requirements.

It is worth noting that the administration, through Treasury and HUD, recently advocated modernization of the Federal Home Loan Bank System, specifically to support residential mortgage lending by promoting mortgage liquidity.<sup>15</sup> Far from suggesting that this function is fulfilled, the administration would direct the FHLBanks toward becoming a third housing GSE with an explicit housing mission—one that may provide support not only to low-, moderate-, and middle-income finance, but upper-income jumbo mortgages, as well as any other activity its members may engage in.<sup>16</sup> In the context of such reaffirmation of the Federal Home Loan Bank System, it is particularly difficult to understand how the Stanton paper can conclude that the need for support in addressing market imperfections is declining.

*In conclusion, the housing finance market is continually changing and evolving. Distinct from the various institutions that have looked to Congress for redirection after the world had passed them by, we are a dynamic and integral part of that market. We lead the change, and we are looked to and depended upon for continued leadership. In view of significant changes in housing programs now contemplated, the value of our strength and leadership becomes greater still.*

## **B. Risk to the Taxpayer**

As a further reason for full privatization, the Stanton paper cites Fannie Mae’s and Freddie Mac’s trillion dollar contingent liability. This figure is flagged several times, along with a listing of government reports examining enterprise risk. The Stanton paper notes that the potential risk has been “well analyzed.”<sup>17</sup>

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<sup>13</sup> Ibid., Sections 1332–1334.

<sup>14</sup> Ibid., Section 1381, Subsection (a)(2)(A).

<sup>15</sup> *Federal Home Loan Banks: Hearing before the Senate Banking, Housing and Urban Affairs Committee*, 103rd Congress, 1st Session (1994) (statement of The Honorable Frank N. Newman, Under Secretary of the Treasury); U.S. Department of Housing and Urban Development, *Report to Congress on the Federal Home Loan Bank System*, April 1994, Vol. I, p. 21.

<sup>16</sup> *Highlights of the Administration’s Federal Home Loan Bank System Modernization Proposal* submitted to the House Subcommittee on Capital Markets, Securities, and Government Sponsored Enterprises, 104th Congress, 1st Session (1995), (submitted by The Honorable Richard S. Carnell, Assistant Secretary of the Treasury). Note too that Treasury testimony affirms that “the secondary mortgage market is a vital and growing part of our housing finance system...” but indicates that the FHLBanks are needed to fill additional needs.

<sup>17</sup> See the Stanton paper, [p. 12].



The nature and extent of potential risk has indeed been scrupulously studied. What the Stanton paper fails to mention is that every one of the six congressionally mandated studies<sup>18</sup> concluded that Fannie Mae was safe and sound and operating prudently with negligible risk to the government. So too did OMB in its 1991 budget submission,<sup>19</sup> and again in its 1992 submission,<sup>20</sup> when it described our risk under its own stress scenario to be “close to zero.” HUD’s 1990 annual report on Fannie Mae concluded similarly.<sup>21</sup> The primary recommendation of all of these analyses was for effective regulation to ensure this result in the future. We now have that regulation.

But readers who rely only on Stanton would erroneously conclude that nothing had changed in the years since he began raising the specter of enterprise risk. There is scant reference to the creation of the Office of Federal Housing Enterprise Oversight (OFHEO). And there is no mention at all of the fact that our safety and soundness regulation is carried out by an office with 63 full-time permanent staff (at the end of fiscal year 1995)—supplemented by substantial additional contract support for a variety of responsibilities including core responsibilities such as examinations—with a \$15.5 million budget in fiscal year 1995 dedicated exclusively to the regulation of Fannie Mae and Freddie Mac. This is a ratio that far exceeds the resources dedicated to bank regulation. It fails to mention too, that our regulation reflects state-of-the-art financial standards tailored to the specific nature of our activities. OFHEO is charged with implementing capital standards that include a minimum capital requirement and a risk-based capital requirement that encompasses interest rate risk, credit risk, and management and operations risk. OFHEO’s scrutiny is constant, as it is required to report quarterly on our capital classification. In each of the eight quarters for which we have been reviewed, OFHEO determined that our classification was “adequately capitalized,” which means our capital has consistently exceeded our minimum capital requirements. In fact, we have exceeded our minimum capital requirements since OFHEO began monitoring capital. Fannie Mae’s current \$10.4 billion capital reserve remains above required levels.

If a trillion dollar contingent liability is cited to weigh risk against benefit, then the true nature of the risk must be considered. At the outset, it merits emphasis that the “trillion dollar contingent liability” is and was, even prior to FHEFSSA, a misleading albeit eye-catching description of purported risk. The “trillion dollar” reference selectively focuses only on the liability side of the balance sheet (the volume of Fannie Mae and Freddie Mac securities outstanding). It ignores the critical fact that every debt and mortgage-backed security issued is, in effect, collateralized by one of the strongest kinds of collateral there is—people’s homes. Numerous other considerations weigh in the

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<sup>18</sup> U.S. Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (April 1991); U.S. General Accounting Office, *Government-Sponsored Enterprises: The Government’s Exposure to Risk* (August 1990), and *Government-Sponsored Enterprises: A Framework for Limiting the Government’s Exposure to Risk* (May 1991); U.S. Department of Housing and Urban Development, *1990 Report to Congress on the Federal National Mortgage Association* (July 1991); U.S. Department of the Treasury, *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (May 1990), and *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (April 1991).

<sup>19</sup> U.S. Office of Management and Budget, *supra* note 6.

<sup>20</sup> See U.S. Office of Management and Budget, *Budget of the United States Government FY93*, Part One at 278–279 (1992).

<sup>21</sup> See U.S. Department of Housing and Urban Development, *supra* note 18, pp. 2, 50–52.



measurement of risk, as the government studies, the legislation, and now regulatory process demonstrate. It is enough to note that the nine government reports previously discussed (including those of OMB and HUD) concluded that risk was minimal before enactment of FHEFSSA. Now as we have continued to grow capital, and with a rigorous regulatory structure in place, that risk is virtually nonexistent. To raise repeatedly the specter of the “trillion dollar contingent liability” devoid of context, as the Stanton paper does, can only hinder informed debate.

### C. Advantages and Inefficiencies

A third section discussing the benefits of full privatization concludes that Fannie Mae’s and Freddie Mac’s charters both afford us unfair advantages and inhibit efficiency.<sup>22</sup> As depicted, the current structure, by implication, seems to be entirely a lose-lose proposition.

Fannie Mae and Freddie Mac were created to fill a public mission; Congress conferred special benefits upon us to *enable* us to do so, and corresponding limitations to *ensure* that we do. In effect, the companies’ statutory charters are a compact between their shareholders and the United States government. The public mission and benefits are tradeoffs for each other.

Thus, our special status confers advantages, precisely as intended. They are what make it possible for Fannie Mae and Freddie Mac to carry out their public mission. Do these restrictions constrain us as Stanton suggests? They do, and by design, to ensure that the benefits are channeled to the public purposes Congress had in mind.

## II. HISTORY OF FULL PRIVATIZATION

The Stanton paper states that full privatization has been contemplated for many years, and it sets forth an account of proposals on the subject.<sup>23</sup> This discussion demonstrates an important point, though different from the one the Stanton paper intends.

Full privatization was indeed contemplated, within the Reagan Administration, on the premise that too much money was being diverted to housing. Congress rejected this premise and declined even to consider full privatization. When the direct approach failed, OMB Director David Stockman developed an indirect approach of imposing “user fees” or homeownership taxes.<sup>24</sup> Congress defeated homeownership taxes for Fannie Mae and Freddie Mac every time they were considered, though in most years it declined to consider the proposal at all. So strong was congressional opposition to these taxes that in 1987 Congress amended Fannie Mae’s and Freddie Mac’s charters to prohibit their imposition. Specifically:

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<sup>22</sup> See the Stanton paper, [p. 13].

<sup>23</sup> See the Stanton paper, [pp. 18–20].

<sup>24</sup> U.S. Office of Management and Budget, *Budget of the United States Government FY87* at p. 5–58 (1986), which states “...this proposal [is] a critical first step toward completely privatizing these entities.”

“...no fee or charge may be assessed or collected by the United States (including any executive department, agency or independent establishment of the United States) on or with regard to the purchase, acquisition, sale, pledge, issuance, guarantee, or redemption of any mortgage, asset, obligation, trust certificate of beneficial interest, or other security by the corporation...”<sup>25</sup>

The legislative history of the prohibition emphatically rejected the views of the Grace Commission report cited in the Stanton paper. It states:

“...The fee proposals stemmed from views expressed in the Grace Commission Report and were basically designed to neutralize the agency status of Fannie Mae and Freddie Mac, and are not in any way related to the costs and underwriting risks of these agencies. *The Committee strongly rejects the views expressed by the Grace Commission. The Committee has no interest in seeing Fannie Mae or Freddie Mac privatized* (emphasis added)...The programs provided by Fannie Mae and Freddie Mac have a proven track record of meeting the purpose for which they were designed, and that is to foster homeownership opportunities by making mortgage credit more affordable. The prohibition on user fees is critical to ensure that continued benefits to home buyers of the programs offered by Fannie Mae and Freddie Mac.”<sup>26</sup>

Former HUD Secretary Samuel Pierce also looked into full privatization, but the report languished in HUD. Eventually released in HUD’s belated Fannie Mae annual report, it was ignored by the Administration and Congress. Secretary Pierce’s successor, Jack Kemp, explicitly opposed these taxes.<sup>27</sup>

*As this history demonstrates, privatization was not a broad-based initiative that was thwarted, but a very limited effort, emphatically rejected by Congress on a bipartisan basis.*

### III. MISPLACED RELIANCE ON SALLIE MAE

Stanton places heavy reliance on the Sallie Mae experience as evidence of what he calls a lifecycle, and the inevitability of full privatization for Fannie Mae and Freddie Mac. Reliance on the Sallie Mae experience is inappropriate.

Sallie Mae’s structure, its purpose, its relationship to the government, the conduct of its business, and its place in the market were fundamentally different from ours. Sallie Mae, unlike Fannie Mae and Freddie Mac:

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<sup>25</sup> Housing and Community Development Act of 1987, Pub. L. 100–242, 101 Stat. 1921 (codified as amended at 12 U.S.C. A. 1719 § 441) (1987).

<sup>26</sup> H. Rep. No. 122 (I), 100th Congress, 1st Sess. 68–69 (1987).

<sup>27</sup> *Confirmation of Secretary Designate Jack Kemp: Before the Senate Banking, Housing and Urban Affairs Committee* (1989), statement of Honorable Jack Kemp, Secretary Designate, U.S. Department of Housing and Urban Development.

- Did not have specific targets for serving the public.
- Did not lower the cost of loans to students or the government (according to government studies).
- Did not bear the credit risk of its student loans (due to federal guarantees of almost all of those assets).
- Received a government-guaranteed minimum interest rate on its student loan assets, which assured profits to shareholders.
- Derived almost all its profits from activities supported by appropriated funds.
- Has managed minimal interest rate risk because short-term, floating-rate student loan assets can be matched with liabilities more easily than long-term, fixed-rate mortgages.
- Does not operate subject to extensive ongoing regulatory scrutiny of its capital, benefits to lower income families, and other business policies.

The guaranteed student loan program ultimately proved costly for the federal government and was perceived as “broken.”<sup>28</sup> Because the rates charged the borrower and paid the lender were fixed in law, Sallie Mae financing did not produce savings for student borrowers or the overall economy.<sup>29</sup>

In contrast, and as noted previously, CBO, OMB and Treasury have repeatedly concluded that Fannie Mae and Freddie Mac directly benefit home buyers and the economy.<sup>30</sup>

In FHEFSSA, Congress explicitly found:

“The continued ability of the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation to accomplish their public missions is important to providing housing in the United States and the health of the Nation’s economy.”<sup>31</sup>

FHEFSSA reinforced and extended that mission. (See also Section I for a more detailed discussion of the importance of our role in the market.)

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<sup>28</sup> U.S. General Accounting Office, *Direct Loans Could Save Billions in First 5 Years With Proper Implementation* (GAO/HRD-93-27, November 25, 1992); *Direct Loans Could Save Money, and Simplify Program Administration* (GAO/HRD-91-144BR, September 27, 1991).

<sup>29</sup> Barry P. Bosworth, Andrew S. Carron, and Elisabeth H. Rhyne, *The Economics of Federal Credit Programs* (Washington, DC: Brookings Institution, 1987), 146-147.

<sup>30</sup> U.S. Congressional Budget Office, *supra* note 5 at 8; *supra* note 3 at 138; U.S. Office of Management and Budget, *supra* note 6 at 229 Part II; U.S. Department of the Treasury, *supra* note 18 (April 1991) at 51-52. See also *supra* note 9.

<sup>31</sup> FHEFSSA § 1302, 106 Stat. 3941, 12 U.S.C. A. §4501(2) (1992).

Sallie Mae came to support privatization, because legislative changes would effectively remove the student lending business from which Sallie Mae previously derived 60% of its income.<sup>32</sup> Sallie Mae acknowledges that there is now adequate capital to meet the needs of the student loan market and has asserted that its situation has changed to such an extent that if not restructured, it would raise the risk premium for investing in other enterprises.<sup>33</sup> Its initial restructuring proposal described Sallie Mae's situation as "unique among the GSEs."<sup>34</sup>

Fannie Mae's and Freddie Mac's shareholders would likely take a decidedly different view of full privatization than those Sallie Mae shareholders who support it. Whereas making Fannie Mae and Freddie Mac fully private would reduce the value of Fannie Mae and Freddie Mac securities, privatization could be advantageous for Sallie Mae shareholders given the decline in Sallie Mae's stock after passage of the Student Loan Reform Act of 1993, and the imposition of a 30-basis-point "offset" fee. The distinct position of shareholders has significant implications for the likely outcome of a Fannie Mae shareholder vote and the projected cost and risk of appraisal rights for dissenters.

Notwithstanding the constraints imposed on Sallie Mae's business, the future of Sallie Mae privatization remains uncertain, marked by dissension and controversy. To date the Sallie Mae privatization process has been instructive of little beyond the difficulty of achieving full privatization—even when there is an interest in doing so.

Going forward, assuming Sallie Mae privatization proceeds past its current hurdles, Sallie Mae is unlikely to offer relevant guidance. Market reaction—which will not be fully felt until a plan is more certain to become reality—is likely to be far different from reaction to making Fannie Mae and Freddie Mac fully private. Most importantly, this is because of the sheer volume of Fannie Mae and Freddie Mac securities outstanding. Sallie Mae has only \$51 billion in outstanding securities, as compared with Fannie Mae's combined debt and MBS of \$837 billion and Freddie Mac's \$568 billion. On the face of it, the market can more readily absorb volatility in \$51 billion of securities as compared with \$1.4 trillion. Second, Sallie Mae relies almost entirely on shorter term and floating-rate financing (some reset as often as weekly). Such instruments are intrinsically less exposed to the effects of restructuring.

The Sallie Mae experience is, in summary, unique. The facts leading to legislative changes, Sallie Mae's reasons for ultimately supporting privatization, and the scope and feasibility of Sallie Mae privatization are distinct from Fannie Mae's and Freddie Mac's experience and situation. Sweeping extrapolations about lifecycles, based on Sallie Mae's experience, are a far reach indeed.

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<sup>32</sup> Sallie Mae, *The Restructuring of Sallie Mae: Rationale and Feasibility* (March 1994), 1.

<sup>33</sup> *Ibid.* at 9, 17.

<sup>34</sup> *Ibid.* at 13.



## IV. LEGAL ISSUES

### A. Overview

The Stanton paper fails to address many serious legal and financial concerns that full privatization presents.<sup>35</sup> First, it cannot be assumed that a fully private Fannie Mae or Freddie Mac would continue in the same or even related businesses. Second, shareholders have substantial legally protected interests which, if addressed as Stanton proposes, could result in significant payments to shareholders. Third, privatization could cause a significant reduction in the value of outstanding debt and equity securities. Creditors may sue, and there is no certain method for satisfactorily addressing creditors' claims short of an explicit and potentially costly government guarantee. Further, debt and equity is widely held by state and local governments, pension funds and federally regulated and insured institutions. To the degree that full privatization weakens the value of Fannie Mae and Freddie Mac debt and equity, it would diminish the value of these governmental and institutional holdings, causing losses to these institutions and potentially rippling throughout the financial sector.

Further, the paper's justification for full privatization is illusory. Full privatization will not remove, and may well increase, risk to taxpayers; and contrary to the impression the Stanton paper creates, the secondary mortgage market today is highly competitive in terms of both pricing and delivery of services.

### B. Public Mission Is Unlikely To Be Served After Full Privatization

Fannie Mae's special status plays a significant role in Fannie Mae's ability to serve its statutory mission. Full privatization would have substantial financial effects on the new entity that would be created and chartered under applicable law to continue the business of Fannie Mae as a fully private corporation ("New Corporation") and the post-restructuring entity that would be responsible for the liquidation process ("Liquidating Corporation"). It would decrease both the New and Liquidating Corporations' ability to borrow, and increase the borrowing costs of each entity. Fannie Mae's current activities could not be expected to continue.

For the New Corporation to compete effectively with other private market players, it could not be singled out for public policy mandates; current obligations and limitations would need to be removed.

Any discussion of specific business activities Fannie Mae would pursue if it were made fully private is entirely speculative, adding further to the pervasive uncertainty of any privatization review. What *is* clear however is that absent a public mission and the tools to serve that mission, the New

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<sup>35</sup> This response focuses only on the fundamental framework of Stanton's restructuring proposal (i.e., that restructuring will produce a privatized successor corporation and a liquidating company). It does not explore the relative merits of alternative legal forms for the successor companies. Should specific proposals be considered, we would propose to submit additional comments at that time.

Corporation would have a strong incentive to fully risk price all activities and discontinue less profitable activities or activities that become less profitable as a result of restructuring. As Moody's reports, "Fannie Mae's public purpose of being active in all mortgage markets and market cycles creates the potential for risk by causing Fannie Mae to be involved in certain markets during adverse cycles in which it might prefer not to be involved."<sup>36</sup>

A fully private Fannie Mae would be unable to conduct the current portfolio business, which is critical to many of the functions we now perform—maintaining liquidity and stability in the mortgage market, dampening cyclical swings, and developing new products, particularly targeted products for which there may not be a ready investor market. A fully private Fannie Mae would be free to pursue profit maximizing strategies that could involve restructuring pricing strategies (e.g., regional pricing, full risk pricing of targeted lending products<sup>37</sup>); reducing activity in distressed markets; concentration in higher balance/jumbo loans; reduction in targeted lending product offerings; diversification into related or unrelated businesses; and indeed, whether to remain in mortgage finance at all. Clearly, it cannot be assumed that our mission would continue to be served or that the broad role we currently fulfill would be met consistently, efficiently, or indeed at all.

### **C. Shareholders Would Have Significant and Potentially Costly Legal Claims**

Importantly, the Stanton paper recognizes the risk of shareholder litigation. Indeed, it implicitly acknowledges the potential merits of shareholder claims by urging protection of shareholders in any proposal for full privatization. Stanton seeks to diffuse a shareholder challenge by recommending that any legislation require shareholder approval and allow for appraisal-based cash payments to dissenters, but preclude shareholder interference with the process of achieving full privatization.<sup>38</sup> In effect, he proposes extending to shareholders the rights that legislatures and courts have fashioned to protect shareholder interests. But the Stanton approach recognizes only part of the challenge.

First, it is doubtful that shareholders would approve full privatization. As Stanton explains, for shareholders "the desirability of restructuring can be expressed in a simple question: Will the value of the shareholder's investment rise or drop as a result?"<sup>39</sup> The precise impact of full privatization on stock value is speculative in the absence of a specific proposal; the profitability of the New

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<sup>36</sup> "Moody's Sovereign Credit Report, Federal National Mortgage Association." Moody's Investors Service, Sept. 1993, at 5 (hereinafter "1993 Moody's Report").

<sup>37</sup> The Fannie Mae Charter (codified at 12 U.S.C. §§1716 et seq.) (hereinafter the "Charter Act"), as amended, contemplates a return on low- and moderate-income mortgage financing that may be less than the return on other activities. This language was provided by Pub. L. no. 102-550, 106 Stat. 3994, Sec. 1381(a)(2)(A) of Title III of the National Housing Act of 1992.

<sup>38</sup> See the Stanton paper, [p. 41].

<sup>39</sup> See the Stanton paper, [p. 14].

Corporation is also highly uncertain.<sup>40</sup> The net effect of full privatization for shareholders may be to permanently eliminate a significant portion of the value of Fannie Mae and Freddie Mac equity securities, or at best, to depress value for an indefinite period as the market adjusts to the uncertainties associated with restructuring. These are hardly outcomes that would lead shareholders to vote in favor of full privatization.<sup>41</sup>

Indeed, the strong shareholder dissent that Sallie Mae's privatization fostered suggests how difficult it would be to gain shareholder approval. Even though Sallie Mae's charter lost much of its value with the advent of direct government lending, a substantial block of shareholders protested the plans for restructuring Sallie Mae.

The Stanton paper also raises the possibility of levying an "exit fee." Imposition of an exit fee would be not only without basis, but it would further depress the value of the shareholders' interests, strengthen their potential legal claims, and increase the likelihood of a negative shareholder vote. In the event full privatization were approved, the fees would weaken the ability to compete as a fully private corporation by depleting capital from the New Corporation.<sup>42</sup>

The notion of an exit fee is based on the presumption that Fannie Mae and Freddie Mac reap benefits from their charters without justification. As discussed earlier,<sup>43</sup> this is clearly not the case as Fannie Mae and Freddie Mac are subject to business restrictions and the obligations of a public mission. The benefits the federal charter provides are tools that enable the corporations to operate effectively under these strictures. Indeed, in a subsequent paper, Stanton seems to reverse this direction entirely, suggesting instead that there be "some sort of transfer payment, from the government...[to create] positive incentives to the shareholders for any loss of shareholder value that might be occasioned by transformation to a privatized company without the advantages and limitations of GSE status."<sup>44</sup>

Perhaps recognizing the likelihood of a negative shareholder reaction, Stanton suggests the possibility of a long-term transition.<sup>45</sup> Such an approach ignores market reality. Markets respond

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<sup>40</sup> The Stanton paper ignores the significant new risks the New Corporation would face. This is a concern to shareholders and would likely be a concern to policymakers as well. Even aside from the issue of change of status, creating a new business involves start-up costs, infrastructure and a new risk profile. A new portfolio, to the extent there is one, will not have the seasoning and tiered maturities of the existing portfolio and therefore will pose new risks.

<sup>41</sup> Stanton never explains why a shareholder should vote in favor of full privatization. The Stanton paper's lifecycle rationale for shareholder support of full privatization is unpersuasive. Even if Fannie Mae's charter were to lose its value in the future, that is not the reality today, nor the major concern of current shareholders.

<sup>42</sup> See the Stanton paper, [pp. 15, 30].

<sup>43</sup> See discussion under "Advantages and Inefficiencies," section 1-C, *supra* [p. 57].

<sup>44</sup> Thomas H. Stanton, "Government-Sponsored Enterprises and Changing Markets: The Need for an Exit Strategy," *The Financier*, Vol. 2, No.2, May 1995, at 38.

<sup>45</sup> See the Stanton paper, [p. 37].



quickly to changes that introduce uncertainty or adversely affect a company's future earnings. If restructuring is perceived as disadvantageous to shareholders, the value of Fannie Mae and Freddie Mac securities can be expected to plummet once it is considered a serious alternative—regardless of the length of the transition.<sup>46</sup> A longer term transition would do little to protect shareholder value or encourage shareholder approval.<sup>47</sup>

Even assuming shareholders approve a restructuring proposal, a significant number of shareholders are likely to dissent. Awarding dissenters' rights legislatively, as Stanton recommends,<sup>48</sup> could prove costly. Dissenters' rights are not easily valued or necessarily limited to what an informed observer might find reasonable. For example, in the recent *Drummond* case in Delaware, the court determined that the fair value of stock was approximately 240% of the price offered to and accepted by a majority of the shareholders.<sup>49</sup> Even more striking is that the fair value determined by appraisal was approximately 225% of what a class of shareholders represented by counsel settled for in a separate, judicially supervised class action proceeding.<sup>50</sup> Private restructurings typically deal with the risk that large numbers of shareholders will dissent by imposing a limit (such as 10% or 15%) on the number of dissenters. If more shareholders dissent, the transaction is abandoned. The Stanton paper does not offer a comparable mechanism for controlling the potential outlay to dissenters, perhaps because any reasonable limit would likely be exceeded.

Stanton ignores the fact that as a result of the dissenters' rights he recommends, some entity—either the New Corporation or the Liquidating Corporation—will be liable for paying dissenters the fair value of their shares. If the New Corporation bears this risk, the uncertainty

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<sup>46</sup> Market impact can occur well before action is a certainty. For example, pharmaceutical stocks substantially declined in value soon after President Clinton was elected. Analysts widely reported that this decline was due, in large part, to the debate over health care reform. This drop in value occurred even though it was unclear whether health care reform legislation would be adopted, and it was evident that any reforms enacted would be phased in over time. See John R. Dorfman, "Drug Stocks Suddenly Seem to Be Under the Weather," *Wall St. J.*, Apr. 24, 1992.

<sup>47</sup> Some market effect could be triggered by the preparation of a restructuring program even if the decision as to when to proceed with restructuring was deferred. Further, Stanton ignores the rapid changes in the secondary mortgage market. Any plan formulated today for future restructuring is likely to be quickly outdated. A restructuring plan that might have been developed for Fannie Mae or Freddie Mac 10 years ago would hardly be relevant today.

<sup>48</sup> See the Stanton paper, [p. 39].

<sup>49</sup> In *Drummond*, shareholders who were cashed out pursuant to the merger received \$75.60 for each of their shares. The court determined upon appraisal that the fair value of the dissenter's shares was \$180.67 per share. *Neal v. Alabama By-Products Corp.*, Del.Ch., C.A. No. 8282, 1990 WL 109243, Chandler, V.C. (Aug. 1, 1990), aff'd *Alabama By-Products Corp. v. Neal*, 588 A.2d 255 (Del.Supr. 1991). *Drummond Co., Inc.* is the successor in interest to *Alabama By-Products Corp.*

<sup>50</sup> During the pendency of the appraisal proceeding, shareholders who were not a party to that proceeding filed a class action challenging the propriety of the merger transaction. Prior to the award of \$180.67 per share in the appraisal proceeding, *Drummond* and the class of shareholders reached a settlement agreement pursuant to which each shareholder would receive an additional \$5 per share. The court concluded that the settlement was fair. Thus, those approving the transaction received approximately \$80 per share, while those who joined in the appraisal received more than \$180 per share. *Hyson v. Drummond Coal Co., Inc.*, 601 A.2d 570 (Del. Ch. 1991).



regarding the magnitude of the outlay would impair its ability to raise capital and make obtaining shareholder approval even more difficult. If the Liquidating Corporation continues to have agency status and bears this risk, from Stanton's perspective, it is a risk that taxpayers may bear.

Further, if Stanton's legislative proposals fail to satisfy shareholders, costly litigation is likely to follow. The Fannie Mae Charter states without further elaboration, that the stock is vested with "all voting rights."<sup>51</sup> Corporate statutes routinely grant shareholders a right to participate in fundamental corporate decisions.<sup>52</sup> Given the fundamental nature of the changes involved, and the grant of "all voting rights," a court could find that a plan to make Fannie Mae and Freddie Mac fully private requires shareholder approval.

In addition, if shareholders are not compensated fully, they will likely claim that privatization constitutes an appropriation of private property without just compensation in violation of the Due Process or the Takings Clause of the Fifth Amendment. While it is true, as Stanton notes, that the standing of the shareholders to bring suit is not clear, the precedents he cites rely heavily on the specific charter, legislative history, and claims involved.<sup>53</sup> It has never been held that GSEs are per se exempt from shareholder suits by virtue of their special status or public mission. The right of Fannie Mae shareholders to bring an action has never been judicially determined.<sup>54</sup>

In determining whether shareholders have standing to bring suit, a court will focus on whether they have suffered an "injury in fact" and whether the interest to be protected is within the

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<sup>51</sup> 12 U.S.C. 1718(a).

<sup>52</sup> For example, the District of Columbia grants supermajority voting and appraisal rights. D.C. Code Ann. §§ 29-367, 29-373, 29-375, 29-378 (1981 & 1994 Supp.). (Two-thirds of outstanding shares must vote to approve the transaction, unless the votes required are reduced to one-half of outstanding shares in the articles of incorporation.)

<sup>53</sup> See, e.g., *Union Pacific R.R. Co. v. United States (Sinking Fund Cases)*, 99 U.S. 700, 719-20 (1878) (concluding that Congress reserved and had "given special notice" of its power to amend the railroad's charter). In *First American Federal Savings and Loan Ass'n v. Student Loan Marketing Ass'n*, No. 84-1014-Civ-5 at 6-7 (E.D.N.C. 1985), the court concluded that the Sallie Mae charter did not grant shareholders a right to challenge the purchase of a savings and loan. Significantly, this case did not involve a fundamental corporate transaction, such as restructuring, and had been brought by a competitor to Sallie Mae which was also a shareholder. Moreover, the voting rights of Sallie Mae shareholders are arguably narrower. Whereas the Fannie Mae Charter grants shareholders "all voting rights," see *supra* note 51 and accompanying text, the Sallie Mae charter states only that "[e]ach share of common stock shall be entitled to one vote with rights of cumulative voting at all elections of Directors." 20 U.S.C. § 1087-2.

<sup>54</sup> See the Stanton paper, n. 78, [p. 41]. In addition to challenging privatization itself on constitutional grounds, shareholders may challenge a particular plan as unnecessarily disadvantageous to their interests. Pursuant to the Fannie Mae Charter, Congress arguably has assumed an obligation to balance shareholders' interests against Fannie Mae's public purposes and protect private investors to the "maximum extent feasible" consistent with Fannie Mae's public purposes. See the Fannie Mae Charter Act, § 301.

“zone of interests” protected or regulated by the charter.<sup>55</sup> Fannie Mae’s charter reflects express congressional intent to attract private investment:

“[t]he Congress declares that the purposes of this subchapter are to establish secondary market facilities for home mortgages, *to provide that the operations thereof shall be financed by private capital to the maximum extent feasible ....*”<sup>56</sup>

There is a substantial argument that an enforceable contractual obligation has been created reflecting a protectable interest which shareholders have standing to assert.

While this is not the appropriate forum to opine on the likely success of such claims, given the stakes involved, it is likely that some shareholders will sue, causing delays and uncertainty—regardless of the ultimate outcome on standing or on the merits. These considerations cannot be assumed away.

#### **D. The Proposals Inadequately Address Creditors’ Concerns and Could Require Explicit Federal Guarantees**

Stanton’s assessment of creditors’ concerns and his proposals for addressing those concerns are seriously flawed. He acknowledges that any plan for achieving full privatization must “maintain the credit quality of the obligation or security for the entire maturity as agreed in its contractual terms.” However, absent an explicit government guarantee, it cannot be assumed that credit quality or valuation will be maintained.

The treatment the market affords Fannie Mae and Freddie Mac securities cannot be mandated or grandfathered legislatively. The market determines such treatment, based on assessment of the safety of Fannie Mae’s and Freddie Mac’s securities. This assessment is the combined product of our federal charter, how we run our business, the size of the business, and the importance of our role in the market.<sup>57</sup> It is susceptible to change if any of the underlying factors changes. Full privatization would ultimately change each of these factors.

Legislative language declaring the status of the outstanding securities unchanged may be helpful, but ultimately it is the market that evaluates change; in the case of full privatization, it would be difficult to ignore the magnitude of changes involved.

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<sup>55</sup> See *Valley Forge Christian College v. Americans United for Separation of Church and State*, 454 U.S. 464 (1982) (discussing injury in fact requirement of standing); *Association of Data Processing Serv. Orgs., Inc. v. Camp*, 397 U.S. 150, 153 (1970) (articulating standard for private rights of action).

<sup>56</sup> Fannie Mae Charter Act, § 301 (emphasis added).

<sup>57</sup>As noted in a recent Moody’s report rating Fannie Mae long-term senior unsecured debt “AAA”: “[t]his rating reflects Fannie Mae’s U.S. government-sponsored enterprise status, its important role in U.S. housing finance policy, and its financial profile. We do not expect these factors to change appreciably over the medium term.” 1993 Moody’s Report, *supra* note 36, at 1.

Dividing the corporations' assets between the Liquidating and New Corporations would, by definition, mean fewer assets backing the securities outstanding. In Stanton's proposal, restructuring would impose sharp limits on the Liquidating Corporations' activities and transferring a significant portion of Fannie Mae's and Freddie Mac's current net worth to the New Corporations. Such a transfer of net worth and loss of future earnings potential materially diminishes the creditworthiness of the Liquidating Corporations.<sup>58</sup>

Restructuring is likely to produce adverse market effects if the division of assets and liabilities reduce the creditworthiness of the entity to which the creditors' claims are tied. Such market effects were vividly illustrated by the recent experience in the restructuring of Marriott. In October 1992, Marriott Corporation announced a plan to divide into two separate entities, Marriott International and Host Marriott Corporation. Under the plan, Marriott International would own Marriott Corporation's management services business, which accounted for more than 50% of its cash flow, but would be responsible for only \$20 million of its outstanding long-term debt. Host Marriott would own Marriott Corporation's real estate portfolio, which accounted for less than 50% of its cash flow, but would be responsible for \$2.9 billion of its outstanding debt. Because the bonds were tied to what was perceived to be the less profitable of the two companies, the value of the bonds fell 30% within a week of the announcement. The bonds were later classified as non-investment-grade, or "junk" bonds, and litigation ensued.<sup>59</sup>

Pending Sallie Mae restructuring legislation attempts to preserve the value of outstanding securities. But such efforts come at the expense of the New Corporation, and given the disparity in size between Sallie Mae, and Fannie Mae and Freddie Mac, this approach can have little relevance to discussion of Fannie Mae and Freddie Mac restructuring.<sup>60</sup>

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<sup>58</sup> Regarding the fundamental issue of allocation, the Stanton paper simply "assumes that enough capital will exist in the successor companies to permit them to conduct their activities on a scale that is appropriate for their lines of business." See the Stanton paper, [p. 25]. While the capital markets provide a potential source of revenue, the ability of the successor entities to raise needed funds will depend on the details of privatization and the strength of the resulting entities' balance sheets.

<sup>59</sup> Kathie O'Donnell, "Marriott Corp. Files With SEC for Offer To Exchange New Securities for Old," *The Bond Buyer*, May 11, 1993, at 3; Sandra Skowron, "Judge Declares Mistrial in Trial After Jury is Deadlocked," *The Associated Press*, Oct. 19, 1994.

<sup>60</sup> For example, pending legislation for the reorganization of Sallie Mae, H.R. 1720, proposes that on the dissolution date the liquidating Sallie Mae shall establish an irrevocable trust and irrevocably transfer into such trust both any remaining obligations of Sallie Mae and sufficient U.S. Treasury obligations and other securities or financial assets in such amounts and of such kind as are necessary to ensure the highest credit rating from a nationally recognized bond rating agency. The newly created holding company would also guarantee repayment of any outstanding obligations.

Although this structure provides comfort to the holders of Sallie Mae's debt, it is important to note that in both the Sallie Mae and the Fannie Mae/Freddie Mac restructuring contexts, a guarantee by the newly privatized entity may prove insufficient and/or have adverse consequences on the New Corporations' financial strength. First, the New Corporations' guarantee may not be sufficient to prevent a decline in value in view of the greater risks entailed by the New Corporations' expanded powers. In addition, even if the New Corporation's guarantee is never called upon, retaining the assets needed to create a "AAA-rated trust" capable of fully collateralizing all remaining outstanding obligations in the Liquidating

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The importance of size and role in the market to the favorable market treatment of our securities is reflected in a recent Moody's report which explains, "The moral obligation of the U.S. government to assist Fannie Mae in a stress situation is reinforced by Fannie Mae's dominant position in housing finance, as well as by the broad ownership of its securities by U.S. banks, thrifts and pension funds, and by major overseas investors."<sup>61</sup> Those considerations diminish as the Liquidating Corporation winds down. As outstanding debt is reduced, the solvency of the Liquidating Corporation becomes less important to the economy. These concerns may be exacerbated by the potentially greater risk that the limited assets and borrowing capacity of the Liquidating Corporation will lead to default.

The market will react to perceived changes in the status of securities. Indeed, Fannie Mae securities experienced such reaction first hand as a result of "dicta" in an Ohio attorney general's opinion relating to the absence of a federal guarantee on Fannie Mae MBS. The opinion affected only a narrow class of local Ohio government units, yet it generated nationwide anxiety that there had been a change in status of Fannie Mae securities.<sup>62</sup> Markets calmed only after the Ohio attorney general publicly disavowed the implication of the dicta.<sup>63</sup>

Once a plan for full privatization is imposed, notwithstanding legislative assurances that the Liquidating Corporations will have GSE status, the universe of investors for their outstanding securities, and any rollover debt, will shrink. Investors that seek to avoid uncertainty will remove the Liquidating Corporations from their approved lists, or impose limits on their own investments in their securities. On the international side, many investors now attracted to the unquestioned high quality of Fannie Mae securities, will back away from any new uncertainty. With less demand, spreads will widen. This means a loss in value to existing investors and an increased cost to the Liquidating Corporation of rolling over debt.

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(...continued)

Corporation will inevitably reduce the amount of capital available for the New Corporation. The effects of this diversion of capital are likely to be particularly severe in a restructuring of the scale of Fannie Mae and Freddie Mac.

<sup>61</sup> See 1993 Moody's report, *supra* note 36, at 1.

<sup>62</sup> The Ohio attorney general issued a ruling that prohibited certain state government entities from investing in mortgage-backed securities issued by Fannie Mae on the grounds that the MBS are not guaranteed by the United States or instruments of the federal government. See "Ohio Nixes FNMA MBS For Public Funds," *Mortgage Backed Securities Letter*, No. 6, Vol. 8, Nov. 15, 1993.

<sup>63</sup> Sallie Mae has attempted to reassure markets that the status of its outstanding obligations will be preserved. See, e.g., Information Statement Supplement dated October 6, 1994, to Information Statement dated August 12, 1994, \$500,000,000 Sallie Mae Floating Rate Notes, Series CU, due October 17, 1997, at 2 (stating that "[b]ased on its discussions with Clinton Administration officials, Sallie Mae understands that any legislation introduced by the Clinton Administration concerning the future of Sallie Mae would preserve the GSE status of Sallie Mae debt issued prior to the effective date of such legislation"). The current Sallie Mae restructuring legislation, H.R. 1720, Section 101 (a), provides that any GSE obligations outstanding at the end of the wind-down period would be transferred to a fully collateralized, rated trust and would be guaranteed by the newly created holding company.



In addition, as the volume of outstanding securities declines, the secondary market for them will be less liquid, and liquidity will continue to decrease as securities mature and outstanding volume shrinks. This trend will further contribute to widening spreads and a concomitant loss in value to existing investors.

It should also be recognized that changes in the value and predictability of Fannie Mae and Freddie Mac obligations may trigger costly creditor litigation. As in the Marriott restructuring, investors in Fannie Mae and Freddie Mac securities are unlikely to sit idly by and watch as the value of their holdings decline. Although it is difficult to evaluate precisely the challenges they would advance in the absence of a specific restructuring proposal, if the value of their holdings declined creditors may challenge both the fairness of the division of assets and liabilities between the New Corporations and the Liquidating Corporations and the propriety of the disclosures made to them regarding the instruments they purchased.<sup>64</sup> Costly creditors' litigation would produce even greater uncertainty and volatility for the new entities.

Moreover, if investors suffered losses, full privatization could produce ripple effects throughout the financial sector<sup>65</sup> and threaten the continued viability of private financing for all such enterprises. A governmental decision to pursue full privatization of financially healthy entities such as Fannie Mae and Freddie Mac is likely to be perceived as unfair and contrary to market expectations. Whereas in a troubled institution the shareholders and creditors may well be better off after privatization, the outstanding securities of a healthy enterprise are more likely to lose value as a result of full privatization. Investors would lose faith in the continued value of their interests and the wisdom of investing in these enterprises.

A delay in implementation, as the paper suggests, will not fool the market. The market reacts quickly and dramatically to changes in government policy that increase uncertainty or imply a loss of

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<sup>64</sup> It is important to recognize that the duty to inform investors of the possibility of becoming fully private may arise long before restructuring actually occurs. Sallie Mae disclosed to investors early on developments pertaining to restructuring. The fact that disclosure obligations (or changes in current disclosure) may be triggered during the course of restructuring planning underscores the importance of not proceeding before evaluating fully the various market and legal consequences of restructuring.

On October 19, 1994, the jury in an \$18 million lawsuit by certain bondholders deadlocked on the issue of when Marriott's duty to disclose its restructuring plans to bondholders arose.

Recent Sallie Mae offering materials disclose the following: "In a letter dated August 23, 1994, Education Secretary Richard Riley and Treasury Secretary Lloyd Bentsen jointly advised the Chairmen of the Senate Labor and Human Resources Committee and the House Committee on Education and Labor that they believe that restructuring Sallie Mae from a government-sponsored enterprise (GSE) to a private state-chartered corporation would be the most promising approach to ensure a smooth transition from the [Federal Family Education Loan Program]...to the direct student loan program and that early in the next Congress the Clinton Administration intends to submit legislation to Congress concerning the future of Sallie Mae. Based on its discussions with Clinton Administration officials, Sallie Mae understands that any legislation introduced by the Clinton Administration concerning the future of Sallie Mae would preserve the GSE status of Sallie Mae debt issued prior to the effective date of such legislation." See, e.g., Information Statement Supplement dated October 6, 1994, *supra* note 63, at 2.

<sup>65</sup> See discussion in Section E below.

value for outstanding obligations.<sup>66</sup> These effects can occur even in situations where the government has the undisputed legal right to enact the policy change.<sup>67</sup> Notwithstanding its legal right to implement new policies, the government has previously been forced to retract policy changes in order to calm the markets.<sup>68</sup>

An explicit federal guarantee of the Liquidating Corporations' obligations, on the other hand, would have obvious budgetary consequences and implications for taxpayers; it would convert a minimal and remote off-balance-sheet contingency into a far greater risk for taxpayers.

## **E. Full Privatization Could Have Adverse Ripple Effects Throughout the Financial Industry**

The market effects of full privatization would extend far beyond the immediate effects on shareholders and creditors alone because of Fannie Mae's and Freddie Mac's fundamental role in the financial marketplace.

Pension funds, state and local governments, and federally insured institutions hold Fannie Mae instruments. As of December 31, 1994, commercial banks alone held nearly \$4.2 billion of Fannie Mae and Freddie Mac stock. More than 9% of Fannie Mae debentures issued in 1994 were purchased by federally insured depository institutions, more than 34% of our MBS. Almost 7% of Fannie Mae debt was purchased by state and local governments.

A substantial drop in the value of outstanding Fannie Mae and Freddie Mac securities would mean losses to these financial and governmental entities, and perhaps ultimately the taxpayer. As an alternative to provoking such losses, the government might be induced to make these entities

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<sup>66</sup> For example: On June 29, 1987, the Treasury Department announced its intention to withdraw from the tax treaty between the United States and the Netherlands Antilles effective January 1, 1988. The withdrawal would have had the effect of imposing a 30% withholding tax on an estimated \$32 billion of U.S. corporate bonds issued prior to 1984 through Antilles-based companies. The Treasury Department's action also would have allowed issuers to call their affected Eurobond issues due to provisions in most of the bonds authorizing calls if U.S. withholding taxes were ever imposed.

The announcement caused an immediate and dramatic adverse market reaction. Eurobond prices dropped as much as 20%, and potential investor losses in excess of \$1 billion were estimated. See Matthew Winkler, "U.S. Move To End Antilles Tax Treaty Alarms Many Investors And Borrowers," *Wall St. J.*, July 1, 1987; David Zigas, et al., "A Tempest Hits The Treasury: Protests Rain Down After It Cancels The Antilles Tax Treaty," *Business Week*, July 20, 1987. Even before the formal announcement was made, speculation caused convertible issues believed to be affected by the decision to drop as much as \$50 or \$60 for every \$1,000 face amount. See Rose Gutfeld and Ann Monroe, "U.S. Is Ending 1948 Tax Treaty With the Antilles," *Wall St. J.*, June 30, 1987.

<sup>67</sup> The Treasury Department's right to withdraw from the Netherlands Antilles Treaty and to impose a withholding tax on the Eurobonds was undisputed.

<sup>68</sup> To calm the Eurobond markets, the Treasury Department ultimately agreed to continue unaltered the part of the treaty that exempts interest payments from the withholding tax. See Alan Murray, "Treasury Plan to Alter Antilles Treaty Is Expected to Calm Eurobond Market," *Wall St. J.*, July 13, 1987.

whole.<sup>69</sup> In either case, restructuring poses the risk of serious financial consequences that must be considered in any evaluation of its feasibility or desirability.

Finally, the removal of Fannie Mae and Freddie Mac instruments from the marketplace would likely reduce the prospective earnings of federally insured institutions, and various pension funds and state and local governments, that are currently permitted to invest substantial portions of their portfolios in Fannie Mae and Freddie Mac instruments. Presumably such exemptions would not be extended to the securities of the New Corporations. Full privatization would, therefore, eliminate from the market highly-rated securities with yields higher than Treasury bills, in which these institutions invest on a large scale. If insured institutions sought to maintain current yields, they would be forced to shift substantial portions of their portfolios to relatively riskier investments. Alternatively, they would have to accept lower returns.

The Stanton paper fails to provide any mechanism for dealing with these complex issues and linkages or indeed any convincing justification for imposing these new risks and costs on financial and governmental institutions.

#### **F. Making Fannie Mae and Freddie Mac Fully Private Would Not Accomplish the Stanton Paper's Goals of Eliminating Taxpayer Risk or Increasing Competition in the Secondary Mortgage Market**

The Stanton paper does not provide sufficient information to permit definitive analysis of the legal implications of its alternative forms for achieving full privatization. However, it is important to note that each of its proposals has fundamental flaws and ultimately fails to achieve the intended goals.

For example, Stanton's proposals do not ensure the elimination of purported risk to taxpayers. Even if made fully private, the New Corporation might be considered "too big to fail." Stanton appears to assume an implied government guarantee is the only relevant factor involved in the level of risk an organization poses the U.S. taxpayer. The history of government "bailouts" suggests otherwise. The "too-big-to-fail" doctrine is only partially related to the presence of some measure of a government guarantee. For example, when Chrysler and Lockheed faced insolvency, the government took measures to protect them even though their liabilities were in no way guaranteed by the government.<sup>70</sup> Also, as discussed previously, full privatization may well increase the risk to taxpayers

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<sup>69</sup> The government has a history of paying creditors in extreme circumstances, even if not legally obligated where economic events adversely affect depository institutions.

For example, see the experiences of Continental Illinois and the Bank of New England. *See* Office of Comptroller of the Currency, Federal Deposit Insurance Corporation, and Federal Reserve Board, Permanent Assistance Program for Continental Illinois National Bank and Trust Co., News Release (July 26, 1984); Failure of the Bank of New England: Hearings Before the House Comm. on Banking, Finance and Urban Affairs, 102d Cong., 1st Sess. 7 (1991).

<sup>70</sup> *See* Chrysler Corporation Loan Guarantee Act of 1979, Pub. L. No. 96-185, 93 Stat. 1324 (1980); Emergency Loan Guarantee Act, Pub. L. No. 92-70, 85 Stat. 178 (1971); and H.R. Rep. No. 379, 92d Cong., 1st Sess. 1272 (1971). (continued...)



when possible payments to dissenting shareholders and guarantees to holders of outstanding debt are taken into account.<sup>71</sup>

Conversely, breaking up Fannie Mae and Freddie Mac into several entities is economically unsound. To do so would create economic inefficiencies, sacrifice the present economies of scale, and pose complicated questions regarding supervision and management. Indeed, if size were deemed an intrinsic risk or competitive concern, a great many of our nation's leading companies would also have to be broken up. In addition, there is no evidence that breaking up (or otherwise restructuring) Fannie Mae and Freddie Mac would achieve Stanton's goal of enhancing competition in the secondary mortgage market. Contrary to the impression the Stanton paper creates, Fannie Mae and Freddie Mac currently operate in an intensely competitive market. We compete with each other as well as with other mortgage finance participants. Competition between Fannie Mae and Freddie Mac may be demonstrated by broad swings in conforming market share over the past 15 years, which ranged from 41% to 69% in the past year alone. Competition between us is also demonstrated by a 17% decline in guarantee fees over the past decade. Moody's notes: "... the two firms must run very hard to stay in place competitively."<sup>72</sup>

Competition from other players is reflected in the fact that Fannie Mae and Freddie Mac together financed only 32% of total single-family mortgages during the past year and only 37% of the single-family conforming business. Indeed, Federal Home Loan Bank advances and deposit insurance provide competition for portfolio lender products. FHA insurance and other market participants provide competition as well.

In this regard, Stanton's references to circumstances in which monopolies have been broken up are particularly misdirected. Not only are Fannie Mae and Freddie Mac currently competing and performing a mission—only recently reinforced and expanded by Congress—but in contrast to the circumstances precipitating the breakups of Standard Oil and American Telephone & Telegraph Company, which Stanton cites, Fannie Mae and Freddie Mac have certainly not engaged in behavior contravening the U.S. antitrust laws.<sup>73</sup> The reference simply does not apply.

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(...continued)

Similarly, when Continental Illinois and the Bank of New England faced insolvency, the government paid creditors amounts in excess of the actual level of government deposit insurance. See *supra* note 69 and accompanying text.

<sup>71</sup> See *supra* pp. 64–65, 70.

<sup>72</sup> 1993 Moody's Report, *supra* note 36, at 3.

<sup>73</sup> In *Standard Oil v. United States*, the decree requiring dissolution was entered after finding that the actions of the Standard Oil Company of New Jersey constituted an unreasonable restraint of trade in violation of the Sherman Act. 221 U.S. 1 (1911) Similarly, the consent decree in *American Telephone & Telegraph Company v. United States* involved allegations of violations of the Sherman Act, 552 F. Supp. 131 (D.D.C. 1982). Size, or market share, alone is not a violation of the antitrust laws. *United States v. Aluminum Co. of America*, 148 F.2d 416, 430 (2d Cir. 1945).



## V. SUMMARY

Analysis of restructuring cannot begin by assuming its inevitability. It must begin by asking “Why?” “What is the purpose?” “What is the price?” It must evaluate the relative certainty and uncertainty of purposes and effects. To be meaningful it must be conducted in the context of other housing incentives. Does the reason for the change apply to other housing incentives as well? Is making Fannie Mae and Freddie Mac fully private corporations the most efficient means of achieving the goal? Would doing so simply increase demand on other, perhaps less targeted, less efficient, more risky housing incentives?

Fannie Mae has led the changes that have made the U.S. mortgage finance system the most efficient, and helped make our nation among the best housed, in the world. As we continued to lead with technology, product innovation, and dynamic changes into the future, Congress reaffirmed and indeed expanded our role in 1992 through FHEFSSA. We carry out our role at no cost to the government, while in recent years paying approximately \$1 billion a year in federal taxes. It cannot be assumed that our contributions to the market and homebuyers would continue if our status were changed. We submit that the purported benefits of restructuring are largely illusory or hypothetical, the costs real and significant. At the same time, the potential additional risks remain an enormous unknown.

## VI. CONCLUSION

The foregoing discussion raises some of the issues required for informed debate on a topic that is both complex and far reaching in effect. It is both the absence of Fannie Mae and Freddie Mac from the market (to be discussed in subsequent papers), and the very *process* of restructuring that can pose major market consequences. Each question demands careful analysis and discussion. The difficulty of assessing these issues is no justification for ignoring them. Indeed, given the role of Fannie Mae and Freddie Mac in the market, the interdependence, and the potential for pervasive financial harm, privatization is a venture that cannot be pursued on the basis of conjecture, faith, or experimentation. Whereas Stanton assumes that full privatization is inevitable and concludes therefore we should begin now, we believe thoughtful analysis must address the questions Stanton glosses over and must provide a risk-benefit analysis of each. In such an analysis, the benefits of full privatization must clearly outweigh the ongoing benefits we provide, and the costs and risks of the process of restructuring itself.

# RESTRUCTURING FANNIE MAE AND FREDDIE MAC: SUPPLEMENTARY ANALYSIS

Thomas H. Stanton

The Fannie Mae Review (Review) makes a number of points that deserve further analysis here:

- (1) *Shareholders and Likely Litigation*: Shareholders of Fannie Mae and Freddie Mac today are unlikely to vote to approve restructuring of their companies to give up GSE status. The net effect of restructuring for shareholders may be to eliminate permanently a significant portion of the value of their stock, or at best to depress value for an indefinite period. [See Review, p. 63.] Moreover, some shareholders inevitably will dissent. In Fannie Mae's words, "While legislation can address shareholder rights, as a constitutional matter can Congress ever preclude litigation being *brought*, and tying up restructuring for years—regardless of the final disposition of the case?" [p. 48, emphasis in original.]
- (2) *Capital Adequacy*: Fannie Mae and Freddie Mac today hold less shareholder capital than the market would require of non-GSEs in the same lines of business. This means that there may not be enough capital currently available in either GSE to provide (a) a cushion of protection for the liquidating subsidiary and (b) a strong capital base for the new non-GSE company, to say nothing of (c) a possible exit fee imposed by the government. With respect to what it calls "the fundamental issue of allocation," the Review [p. 67, fn. 58] challenges the assumption of the Restructuring Study that enough capital will exist in the successor companies.
- (3) *Financial Risks of Restructuring*: The Review asserts that the GSE today carries out its role "at no cost to the government" [p. 73]. The review cites a number of government studies that it contends stand for the proposition that Fannie Mae operates "with negligible risk to the government," or indeed with a level of risk that is "close to zero" [p. 56]. By contrast, restructuring "may well increase...risk to taxpayers..." [p. 61]. Among those at risk besides taxpayers may be holders of debt obligations and MBSs [pp. 66–70] and special holders such as commercial banks that hold Fannie Mae stock [p. 70] and pension funds and state and local governments that hold Fannie Mae securities [p. 70].
- (4) *Fannie Mae's Mission*: The first eight pages of the Review discuss the value of the services provided by Fannie Mae and Freddie Mac, and state that "...the administration's budget for 1996 concludes the need for Fannie Mae is not only ongoing, but growing..." [p. 51.]

This analysis is organized into four sections, corresponding to these four subject matter categories, followed by a brief conclusion. It is important to scrutinize carefully the assertions in the Review; some of the assertions help to advance the analysis of restructuring while other assertions contain traps for the unwary. The careful reader will find that the Review does not challenge the fundamental elements of the framework presented in the original Restructuring Study.

The following question provides a context for considering the issues raised by the Review: *To what extent do the public benefits provided by Fannie Mae and Freddie Mac today derive from the federal subsidies that they receive, and to what extent do they derive from actual value-added that is provided by the companies and their managers?*<sup>1</sup>

If the companies do provide significant value-added—in the form of financial and technological systems and innovations, for example—then the successor non-GSE companies would be likely to build upon their distinctive competencies and continue to provide such public benefits. Other commercial firms, no longer crowded out by the competitive disadvantage created by special subsidies for the GSEs, could also contribute to the public good. This occurred in the telecommunications industry after the breakup of AT&T. Both AT&T and competing telecommunications companies began to provide services in new combinations that had not occurred when AT&T was a monopoly.

If Fannie Mae and Freddie Mac do provide significant value-added through their management and capabilities today, then successor companies, such as AT&T after the breakup, are likely to have rosy prospects.<sup>2</sup> By offering the likelihood of continuing profitability, successor companies would be able to raise significant equity capital from investors and thus meet the capital requirements of the private market.

If, on the other hand, the benefits of the companies derive primarily from their federal subsidies, then today's GSE shareholders have reason to fear restructuring and the loss of the benefits of GSE status. They would not be able easily to attract new investors to buy stock in the non-GSE successor companies.

The Review [p. 73] concludes by inviting a comparison of GSEs to other federal housing incentives. If the GSEs do provide significant value-added, then they will do well in such a comparison; if not, then the government would be well advised to adopt restructuring, both to reduce taxpayers' contingent liability and to permit emergence of more efficient and competitive firms in the residential mortgage market.

With respect to the framework presented by the Restructuring Study, the essential conclusion remains: A well-conceived restructuring process can address the technical complexities of removing GSE status from Fannie Mae and Freddie Mac in a way that accomplishes the transformation efficiently and effectively and that reduces the level of financial risk from activities of the two companies.

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<sup>1</sup> At a 1994 seminar held by the Congressional Budget Office to discuss the Restructuring Study, economist John Peterman focused upon this question as a core issue.

<sup>2</sup> One scholar calculates that the breakup and deregulation of AT&T “helped create over \$125 billion of increased value between AT&T and the Baby Bells.” He considers the AT&T breakup to be “one of the court system’s outstanding successes.” Michael C. Jensen, “The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems,” *The Journal of Finance*, Vol. 48, No. 3, July 1993, pp. 831–880, at p. 850.

## I. SHAREHOLDERS AND LIKELY LITIGATION

### A. Position Statement: The Fannie Mae Review

The Review states that “...it is doubtful that shareholders would approve full privatization.” [p. 62.] This is because “...making Fannie Mae and Freddie Mac fully private would reduce the value of Fannie Mae and Freddie Mac securities....” [p. 60.] In this regard, Fannie Mae and Freddie Mac shareholders are in a position different from that of Sallie Mae shareholders, whose stock declined significantly in value after a 1993 law imposed a 30-basis point user fee on Sallie Mae.” [p. 60.]

Moreover, “Even assuming shareholders approve a restructuring proposal, a significant number of shareholders are likely to dissent....Dissenters’ rights are not easily valued or necessarily limited to what an informed observer might find reasonable.” [p. 64.] In summary, “shareholders would have significant and potentially costly legal claims,” with respect to restructuring [p. 62].

### B. Analysis of the Fannie Mae Review

#### *(1) The Fannie Mae Review as a Statement on Behalf of Shareholders*

The Review is a statement from a major shareholder-owned and shareholder-controlled company that argues against loss of its current federal charter and the federal benefits conferred by that charter. It is important to understand this aspect of the Review because it is the key to understanding the fundamental driving force behind all investor-owned GSEs. The private ownership of GSEs can give them considerable strengths, especially vis-a-vis some agencies of government;<sup>3</sup> however, private ownership also creates interests and incentives that can be different from those of the government or the American people as a whole.

As a general rule, the purpose of an investor-owned corporation is to make profits for shareholders.<sup>4</sup> The fact that an investor-owned corporation is chartered as a federal instrumentality does not change this principle.<sup>5</sup>

It is well-settled law that the directors and officers of a shareholder-owned corporation such as Fannie Mae and Freddie Mac owe a fiduciary responsibility to the shareholders and to the company. There exists no basis for distinguishing presidentially appointed directors from shareholder-elected directors of a GSE in this regard.

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<sup>3</sup> The benefits and limitations of private ownership are discussed in Thomas H. Stanton, “Federal Credit Programs: The Economic Consequences of Institutional Choices,” *The Financier*, February 1994, pp. 20–34.

<sup>4</sup> See, e.g., *Dodge v. Ford Motor Co.*, 204 Mich. 459, 170 N.W. 668 (1919).

<sup>5</sup> *Osborn v. Bank of the United States*, 22 U.S. (9 Wheat.) 738 (1824). (Although it carries out public purposes as specified in law, the Bank of the United States is a private company created to earn profits for its stockholders.)



When a corporation issues debt obligations, it pledges that debtholders have a right to be paid before shareholders; this creates a legal obligation of corporate management to protect the interests of debtholders as well.

Edward Fox, then President and Chief Executive Officer of Sallie Mae, explained this set of priorities to a congressional committee:

“We are a private corporation and as such, with stockholders and bond holders, we have a fiduciary responsibility to those individuals....We are not charged with subsidizing the guaranteed student loan program or subsidizing the students.”<sup>6</sup>

The legal rights of shareholders are enforceable in court. Directors and officers of an investor-owned company are subject to personal liability for breaching their fiduciary responsibility.<sup>7</sup> The GSEs also reinforce the identification of their directors and officers with the interests of shareholders by providing generous stock option plans.

Thus, shareholders come first in the priorities of directors and officers of a government-sponsored enterprise. Managers of an investor-owned GSE have a legal obligation to speak on behalf of shareholders. The Review is one of a number of documents that have been produced in this context. Because the Review is a statement on behalf of the corporation and its shareholders, its statements about the likely actions of shareholders deserve special attention.

## *(2) The Legal Rights of Shareholders*

Neither the Restructuring Study nor this analysis is intended to be a legal document. However, it is worth pointing out that the Review is quite cautious in its legal claims concerning the rights of shareholders:

“If shareholders are not compensated fully, they will *likely* claim that privatization constitutes an appropriation of private property without just compensation in violation of the Due Process or the Takings Clause of the Fifth Amendment....There is a *substantial argument* that an enforceable contractual obligation has been created reflecting a protectable interest which shareholders have standing to assert.” [Review, pp. 65–66, emphasis added.]

These statements fall short of asserting that shareholders would actually prevail in such claims and arguments.

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<sup>6</sup> Subcommittee on Education, Arts and Humanities, Committee on Labor and Human Resources, United States Senate, *Oversight of Student Loan Marketing Association (Sallie Mae)*, Hearing, August 12, 1982, p. 135.

<sup>7</sup> See note, “Personal Liability of Directors of Federal Government Corporations,” *Case Western Reserve Law Review* (1980), pp. 733–779. The note is weakened by its attempt to combine discussion of the role of directors of investor-owned instrumentalities of government (such as GSEs) with the quite different issues relating to directors of wholly owned government corporations (i.e., agencies of the United States).

Compare a 1977 statement with the message that is now conveyed by the Review. In 1977 Fannie Mae commissioned a legal opinion as to the constitutional implications of a legislative proposal to increase to a majority the number of directors appointed by the President of the United States to Fannie Mae's board of directors. That legal opinion stated:

“Section 302 of the 1968 Charter Act assured FNMA's shareholders that the ‘corporation shall have succession until dissolved by Act of Congress.’ 12 U.S.C. Sec. 1717(a)(2)(B)...A charter repeal could not be said to confiscate property rights, since all the assets would be distributed to shareholders upon dissolution....FNMA's shareholders invested in the corporation with notice that FNMA could be dissolved and its assets distributed, but not that the corporation's charter might be amended to dilute their control over the corporation's management.”<sup>8</sup>

That legal opinion was part of a successful campaign many years ago to defeat the legislation that Fannie Mae found objectionable.<sup>9</sup> Yet, in today's different circumstances, the Review makes quite different statements about potential shareholder claims.<sup>10</sup>

### *(3) Responses to the Likely Actions of Shareholders*

The Review provides an opportunity to revisit an important issue: Fannie Mae and Freddie Mac shareholders today reap generous returns on equity and are likely to fight to keep their financial benefits.<sup>11</sup> The tone of the Review gives the reader some sense of the vehemence with which shareholders are likely to defend their prerogatives. This issue was addressed in the Restructuring Study [pp. 38–41].

Policymakers might distinguish two processes for restructuring. One process is exemplified by Sallie Mae. There, shareholders have already lost much of the value of their equity holdings. Sallie Mae management has recognized that the enterprise is nearing the conclusion of its lifecycle as a GSE and that the company may benefit from restructuring to receive a new charter as a general-

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<sup>8</sup> Memorandum, Law Offices of Williams & Connolly, to James E. Murray, Senior Vice President and General Counsel, Fannie Mae, June 3, 1977 (an opinion on the constitutional implications of S. 1397, introduced April 27, 1977), p. 27.

<sup>9</sup> It should be noted that the 1977 legislation in fact did contemplate an unwise mixing of public control and private ownership.

<sup>10</sup> The issue of notice to shareholders is an important one. Investors consistently discount the value of Fannie Mae stock because of the widespread understanding that a government-sponsored enterprise is subject to the governmental process. A recent report states: “Fannie's stock price doesn't always reflect its well-honed market instincts. [T]he company's shares were trading in the high 90s in late June but at a sharp discount to market multiples. Part of this can be attributed to investors' perception of political risk...” Michael Carroll, “Masters of Beltway Capitalism,” *Institutional Investor*, Vol. 29, No. 7 (July 1995), pp. 60–71, at p. 63.

<sup>11</sup> This has been a consistent theme of Fannie Mae's management. See, e.g., David A. Wise, “The Money Machine: How Fannie Mae Wields Power; Fannie Mae Lobbies Hard to Protect its Tax Break,” *The Washington Post*, January 16, 1995, p. A-1.

purpose company chartered under state law.<sup>12</sup> Sallie Mae's management has recommended to shareholders that they approve restructuring and termination of the company's special status as a GSE. The executive branch has reinforced this decision by recommending that the GSE be liquidated if restructuring is not feasible.<sup>13</sup> In such circumstances the Congress may be able to fashion legislation to enable restructuring to proceed smoothly as a "win-win" for all parties.<sup>14</sup>

The other restructuring process would occur with respect to highly remunerative shareholder-owned GSEs such as Fannie Mae and Freddie Mac today. Here, as the Review points out [p. 65], shareholders are likely to use litigation to block the restructuring process.<sup>15</sup> This was the case with shareholders of the Federal Home Loan Bank of Los Angeles, who litigated for years after the government dissolved their enterprise.<sup>16</sup>

The Review aptly observes [p. 63, fn. 41] that, "Even if Fannie Mae's charter were to lose its value in the future, that is not the reality today, nor the major concern of current shareholders."

By contrast, the government may want to adopt a somewhat longer time horizon than such shareholders. While the Restructuring Study [p. 17] recommended that shareholders be permitted to approve the restructuring process, this is not a necessary step. The GSEs are creatures of legislation; it is the government's prerogative to decide whether or not to terminate their government sponsorship.

The risk of litigation and other obstacles to restructuring from shareholders and management of the two GSEs is a real one. The risk is especially great when shareholders perceive that they currently reap considerable benefit from the GSE status of the companies that they own (i.e., the government provides tax and regulatory benefits and an implicit federal guarantee without charge to the GSEs) and that restructuring—whether or not it is in furtherance of a mandate from the Congress or executive branch—is not in their financial best interests. As the Review points out [p. 60], even

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<sup>12</sup> "Most of our diversification opportunities...go beyond the parameters of our current charter as a government-sponsored enterprise (GSE)...It is our firm belief that rechartering represents the best means of enhancing the future performance of the corporation. We also believe that our core competencies can be applied to new value-creating endeavors beyond those permitted in our GSE charter." Sallie Mae, *1994 Annual Report* (Washington, DC: 1995), p. 10. The Sallie Mae Annual Report is titled, "Tempora mutantur, nos et mutamur in illis (Times change, and we change with them)."

<sup>13</sup> Oral statement of Leo Kornfeld, Senior Adviser to the Secretary, U.S. Department of Education, in joint hearings held May 3, 1995, before subcommittees of the Committee on Economic and Educational Opportunities and the Committee on Government Reform and Oversight, U.S. House of Representatives, May 3, 1995.

<sup>14</sup> Thus, the Sallie Mae *1994 Annual Report*, p. 10, states, "We believe rechartering rewards the shareholder, represents sound public policy, and benefits our customers."

<sup>15</sup> GSEs have shown an ability to marshal other parties on their behalf as well. Thus, the *Washington Post* reports: "Builders, real estate brokers and bankers across the country rely so heavily on Fannie Mae for mortgage funds that they live in fear of offending the firm and routinely defend it in Washington." Vise, *supra* note 11, p. A-14.

<sup>16</sup> *Fahey v. O'Melveny & Myers*, 200 F.2d 420 (9th Cir., 1952).

Sallie Mae's management seems to have some difficulty obtaining the support of shareholders for its restructuring plan.

Under these circumstances, the Congress may want to consider enacting legislation that is carefully shaped to permit consummation of the process while affording monetary relief to any successful litigants who might overcome the procedural and other obstacles noted in the Restructuring Study.<sup>17</sup> The Review virtually promises that litigation will arise during the restructuring of Fannie Mae; the government will need to anticipate such litigation and shape restructuring legislation accordingly.

## II. CAPITAL ADEQUACY

### A. Position Statement: The Fannie Mae Review

The Review [p. 67] expresses concern about the allocation of assets between the liquidating GSE and the new corporations. The Review states that the Restructuring Study simply "assumes that enough capital will exist in the successor companies to permit them to conduct their activities on a scale that is appropriate for their lines of business." [Review, p. 67, fn. 58, citing Restructuring Study, p. 25.]

### B. Analysis of the Fannie Mae Review

The issue of capitalization is important to shareholders of a GSE.<sup>18</sup> Shareholders of Fannie Mae and Freddie Mac today enjoy greater leverage on their investment than do shareholders of virtually any other financial services firms.

The U.S. Congressional Budget Office (CBO) explains how the perception of government backing of GSE obligations permits shareholders to leverage their capital stock:

"In other words, the federal government is a 'shadow' provider of equity capital to the GSE: it stands in for other investors whose capital would be required

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<sup>17</sup> See *Budget of the United States Government, Fiscal Year 1996: Appendix* (Washington DC: 1995), p. 791 ("Claims, Judgments and Relief Acts"). Because budget scorekeepers would be uncertain beforehand as to the amount of any successful claims, this part of the restructuring law is not likely to be scored for budget purposes when it is enacted.

<sup>18</sup> Alexander Hamilton understood this principle when he established stringent capital requirements for the Bank of the United States, the lineal antecedent of Fannie Mae and Freddie Mac: "From...a desire of enhancing its profits, the directors of a bank will be more apt to overstrain its facilities, in an attempt to face the additional demands which the course of business may create, than to set on foot new subscriptions, which may hazard a diminution of the profits, and even a temporary reduction of the price of stock." Alexander Hamilton, "Report on a National Bank," December 13, 1790, reprinted in Samuel McKee, Jr., *Papers on Public Credit, Commerce and Finance by Alexander Hamilton* (New York, NY: Columbia University Press, 1934), p. 77.



in the government's absence to bolster the GSE's credit rating, and who would demand compensation for the use of their money."<sup>19</sup>

Thus, the Review is correct in noting that, if sufficient capital remains with the liquidating GSE to provide proper protection to taxpayers from the government's implicit guarantee of GSE obligations and MBSs, little if any capital will remain to provide an equity base for the new non-GSE operating company.

However, the Review has taken the quoted sentence out of context. It fails to quote the next sentence from the Restructuring Study: "Such capital would come from proceeds of the restructuring process *plus any new funds raised from offerings of stock in the new companies.*" [Restructuring Study, p. 25, emphasis added.] The new companies will need to go into the financial markets to raise money, just as is necessary for all private firms that must live off their market-based skills rather than on the basis of an implicit government guarantee.

In a 1991 study, the U.S. Treasury Department published a comparison of Fannie Mae's capitalization, compared both to completely private firms and to other government instrumentalities such as banks and large bank holding companies.<sup>20</sup> That figure is reproduced as Figure 1. It can be seen that, as a GSE, Fannie Mae is significantly less well capitalized than private financial services firms such as credit companies, insurance companies, and securities brokers/dealers.

In another 1991 study, the U.S. Treasury Department published a comparison of Fannie Mae's capitalization with capital ratios of banks, savings and loans, and other major providers of mortgage credit.<sup>21</sup> That figure is reproduced as Figure 2. It can be seen that Fannie Mae and Freddie Mac are significantly less well capitalized than other federal instrumentalities that use federal backing to provide mortgage credit.

The Review makes much of the fact that it is now subject to new capital and regulatory requirements under legislation that the Congress enacted in 1992. [p. 56.] Yet, the new financial regulator, OFHEO, has recently released a report that confirms the continuing low capitalization of Fannie Mae (and Freddie Mac) compared to the other financial services companies listed in the 1991 Treasury studies. OFHEO reports that, at year-end 1994, Fannie Mae had a ratio of equity to assets-plus-MBSs of only 1.26%; Freddie Mac had an even lower capital ratio, 0.91%.<sup>22</sup>

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<sup>19</sup> U.S. Congressional Budget Office, *Reducing the Deficit: Spending and Revenue Options*, "Impose a cost-of-capital offset-fee on Fannie Mae and Freddie Mac" (Washington, DC: 1995), p. 318.

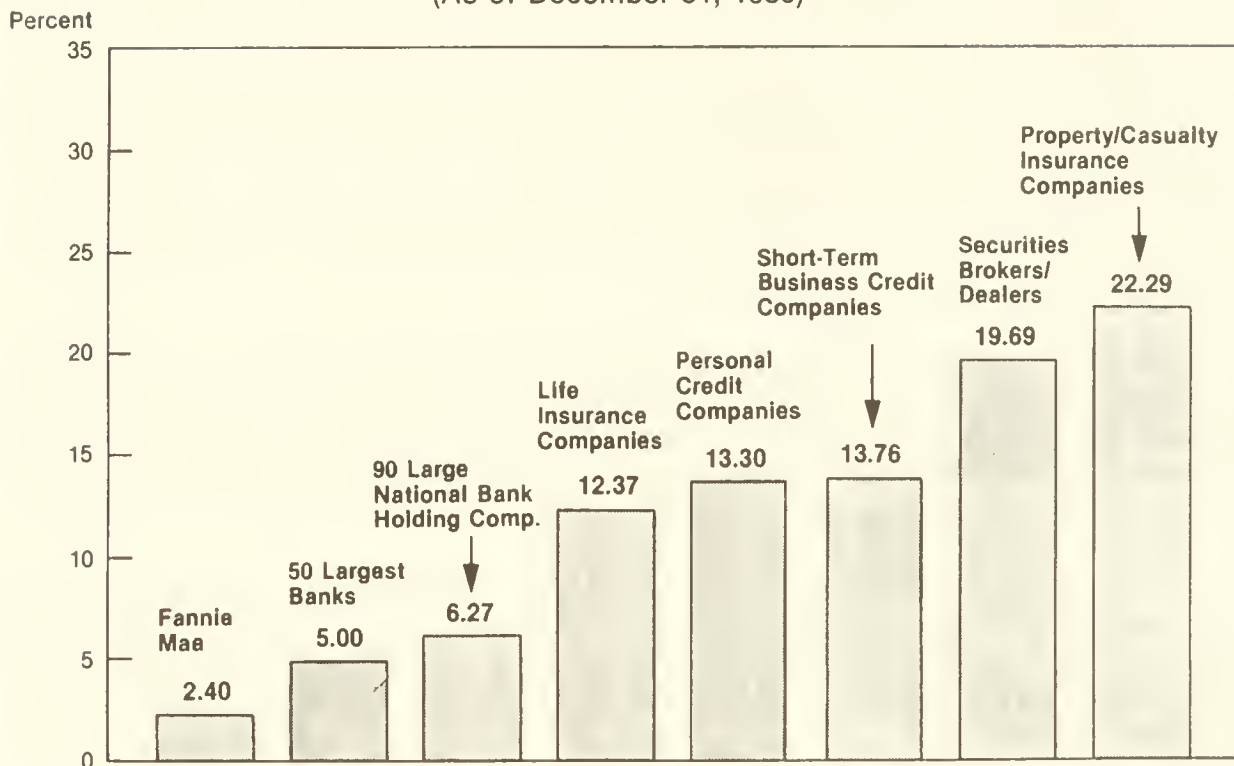
<sup>20</sup> U.S. Treasury Department, *Modernizing the Financial System: Recommendations for Safer, More Competitive Banks* (Washington, DC: February 1991), figure 9, preceding p. 13.

<sup>21</sup> U.S. Treasury Department, *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (Washington, DC: April 1991), p. 12.

<sup>22</sup> Office of Federal Housing Enterprise Oversight, *Annual Report to Congress 1995* (Washington, DC: June 15, 1995), at pp. 43 (Fannie Mae) and 47 (Freddie Mac).

**FIGURE 1**

**Financial Institution Capital Levels  
Median Equity Capital-To-Total Assets Ratios  
(As of December 31, 1989)**



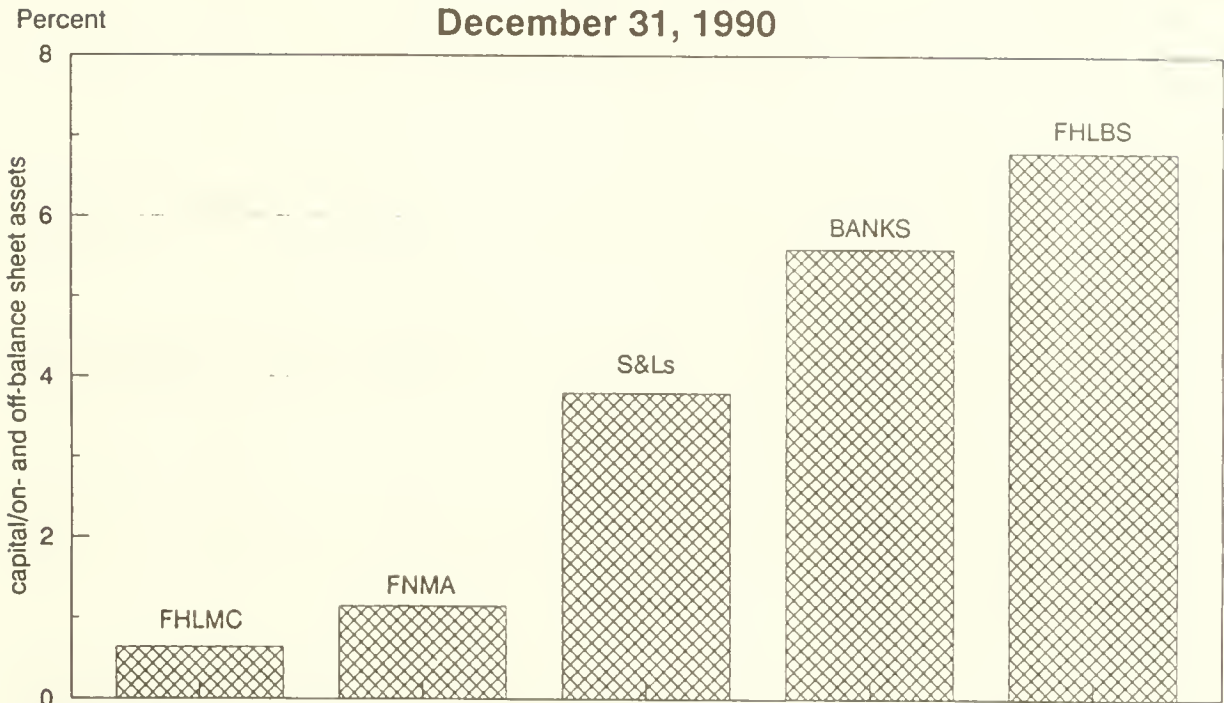
Sources: Bank Call Reports and  
Standard and Poor's Compusat Service, Inc.

Taking ratios of equity capital to assets that appear on the balance sheets of Fannie Mae and Freddie Mac at year-end 1994 (disregarding the large volume of their MBSs outstanding) yields capital ratios of 3.50% for Fannie Mae and 4.86% for Freddie Mac. This compares with average capital ratios of 7.78% for all commercial banks and 7.01% for large banks with assets of more than \$10 billion, and 7.94% for all thrift institutions and 6.70% for all large thrifts with more than \$5 billion in assets.<sup>23</sup>

<sup>23</sup> These figures are calculated from 1994 year-end reports of the Federal Deposit Insurance Corporation for the Bank Insurance Fund (BIF) and Savings Association Insurance Fund (SAIF), respectively.

FIGURE 2

Major Providers of Mortgage Credit  
Capital-to-Asset\*\* Ratios  
December 31, 1990



\* Capital includes common stock, additional paid-in capital, and retained earnings, but not loan-loss reserves or subordinated debt.

\*\* Total assets include on-balance sheet assets plus off-balance sheet contingent liabilities risk adjusted according to appropriate institutional criteria.

Sources: Federal Reserve, Office of Thrift Supervision, and GSE balance sheets.

The relatively low capitalization of Fannie Mae and Freddie Mac leads to two conclusions for restructuring: First, as noted in the Restructuring Study [p. 25], policymakers must expect that the new successor non-GSE operating companies would need to tap the financial markets for additional equity capital. This may be true regardless of the lines of business that the new non-GSEs may decide to enter. Second, policymakers may want to consider imposing additional capital requirements upon the GSEs in the years before restructuring is actually contemplated. Additional capital would reduce the sizable gap that now exists between today's modest statutory capital requirements for Fannie Mae and Freddie Mac and the level of capitalization that the markets will require of the non-GSE private firms that emerge after restructuring.

### III. FINANCIAL RISKS OF RESTRUCTURING

The matter of financial risks divides into two sets of issues: (1) the financial risks posed by Fannie Mae's (and Freddie Mac's) activities today, and (2) the financial risks posed by trying to restructure the two GSEs.

#### A. The Financial Risks Posed by Fannie Mae's Activities Today

##### *(1) Position Statement: The Fannie Mae Review*

The most serious assertions in the Review relate to the purportedly negligible financial risk posed by Fannie Mae's activities, including the following:

- "We carry out our role at no cost to the government." [p. 73.]
- "What the Stanton paper fails to mention is that every one of the six congressionally mandated studies concluded that Fannie Mae was safe and sound and operating prudently with negligible risk to the government." [p. 56, footnote omitted.]
- "It is enough to note that the nine government reports previously discussed (including those of OMB and HUD) concluded that risk was minimal before enactment of FHEFSSA. Now as we have continued to grow capital, and with a rigorous regulatory structure in place, that risk is virtually nonexistent." [p. 57.]

Another assertion relates to the nature of the regulatory framework that is supposed to protect taxpayers from risk of loss due to Fannie Mae's activities:

- "There is scant reference to the creation of the Office of Federal Housing Enterprise Oversight (OFHEO). And there is no mention at all of the fact that our safety and soundness regulation is carried out by an office with 63 full-time permanent staff...with a \$15.5 million budget...dedicated exclusively to the regulation of Fannie Mae and Freddie Mac. This is a ratio that far exceeds the resources dedicated to bank regulation." [p. 56.]

##### *(2) Analysis of the Fannie Mae Review: The Nine Government Studies*

These assertions do not withstand scrutiny. Take first the nine government reports invoked in the Review. These include two reports of the Secretary of the Treasury (1990 and 1991), two reports from the U.S. General Accounting Office (GAO) (1990 and 1991), one report of CBO (1991), two reports of HUD (1990 and 1991), and commentary in the Annual Budget of the United States Government (Fiscal Year 1992 and Fiscal Year 1993).

Notwithstanding the assertions of the Review, *none of these studies stated either that Fannie Mae was safe and sound and operating prudently with negligible risk to the government or that risk was minimal*. The actual conclusions of the first six studies (two from Treasury, two from GAO, one from CBO, and one from HUD) were summarized by HUD as follows:



“There is a general consensus that neither FNMA nor FHLMC currently poses a significant financial threat. The 1991 Treasury report contains evaluations of all GSEs, including FNMA, by Standard & Poor’s Corporation. FNMA was rated as A-. Potential sources of problems noted were a thin capital base and narrow pricing margins, producing susceptibility to earnings cyclicalities. Interest rate changes—especially, a sustained rise in interest rates to much higher levels—could also pose a problem, and Standard & Poor’s noted a trend towards non-recourse transactions, implying greater credit risk.”<sup>24</sup>

Indeed, one consistent theme of the government studies was that Fannie Mae and Freddie Mac posed no imminent threat to the federal government, but that the risks to taxpayers needed to be addressed. For example, the *1991 Report of the Secretary of the Treasury* states:

“The Treasury concluded in its last report on GSEs that none of these institutions poses an imminent financial threat....However, that GSEs can get into financial difficulty is more than a hypothetical possibility. Both the Farm Credit System and Fannie Mae experienced financial stress during the 1980s.”<sup>25</sup>

The Treasury Department requested the Standard and Poor’s Corporation (S&P), a nationally recognized credit rating service, to assign letter ratings to all of the GSEs to reflect their financial safety and soundness and the risk that they posed to the government. S&P assigned a letter rating of “A-” to Fannie Mae. This meant that Fannie Mae ranked below all other GSEs rated (Sallie Mae, the Federal Home Loan Bank System, and Freddie Mac), except for one (the Farm Credit System). Freddie Mac received a letter rating of “A+” that was well below the “AAA” ratings that S&P assigned to Sallie Mae and the Federal Home Loan Bank System.

The Comptroller General of the United States, Charles Bowsher, pointed to serious financial risk that had manifested itself only a few years earlier:

“...Fannie Mae had much the same problem in the early 1980s as the S&Ls....I think you could have had a serious, large bailout of Fannie Mae in the mid-1980s. There have been some estimates that it might have been as much as over \$10 billion if you had marked-to-market Fannie Mae....

“So we got out of that situation because the strategy that was used worked out, but it was a strategy not too different than what some of the S&L people did. In other words, they tried to grow their way out. S&Ls went in some directions that got them into more trouble. Fannie Mae got themselves out. But you were literally

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<sup>24</sup> U.S. Department of Housing and Urban Development, *1990 Report to Congress on the Federal National Mortgage Association* (Washington, DC: July 1991), at p. 7 (footnote omitted). This HUD study is one of the nine referenced in the Review.

<sup>25</sup> *1991 Report of the Secretary of the Treasury*, at pp. 2–6.

betting taxpayer money in that solution. In other words, literally, if it hadn't worked, taxpayer money would have had to have gone into that situation."<sup>26</sup>

The Director of CBO, Robert Reischauer, stressed the problem of new risks manifesting themselves in the future:

"...Government is going through a period in which there is an unusual degree of attention on Government-Sponsored Enterprises in no small measure because of the fiascoes that occurred in the savings and loan and the bank areas. That won't always be true. What you want to do is set up a system that will operate effectively, provide the taxpayer with the protection that we want to assure...when the spotlights go off, when the cameras are no longer running, when nobody knows who the chairperson is of...that regulatory agency, and nobody cares. Because that's when the GSE's can get into trouble."<sup>27</sup>

The Treasury Department<sup>28</sup> and GAO<sup>29</sup> each drafted legislation that would have created a strong financial regulator for each GSE, including Fannie Mae. The regulator would have had the independence, institutional capacity, legal authority, and flexible discretion to prescribe capital standards according to the risks taken by each enterprise and to enforce safety and soundness requirements in a manner similar to the federal bank regulators.

As Assistant Secretary of the Treasury Jerome Powell explained:

"We believe that the passage of this legislation will result in more effective safety and soundness oversight of these important entities, thereby sharply reducing the threat that the taxpayer would be called upon for another costly and painful rescue."<sup>30</sup>

Given this consistent theme of the federal government studies, how can the Review then assert that "OMB...described our risk under its own stress scenario to be 'close to zero'"? [p. 56.] The answer is that the Review takes a quotation out of context from a report by the Office of Management and Budget that tested the effects of a stress scenario involving credit risk and interest

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<sup>26</sup> Subcommittee on Government Information and Regulation, Committee on Governmental Affairs, United States Senate, "Various Proposals to Regulate GSE's and to Examine the Risk These Entities Pose to U.S. Taxpayers," Hearing, July 18, 1991 (Washington, DC: 1992), at pp. 4-5.

<sup>27</sup> Committee on Banking, Housing, and Urban Affairs, United States Senate, "Legislative Proposals to Ensure the Safety and Soundness of Government-Sponsored Enterprises," Hearings, May 10, 1991 (Washington, DC: 1992), at p. 95.

<sup>28</sup> The Government Sponsored Enterprises Financial Safety and Soundness Act of 1991, S. 1282 (introduced by request), reprinted in the *Congressional Record*, June 12, 1991, pp. S7637-S7661.

<sup>29</sup> The Federal Enterprise Regulatory Act of 1991, S. 1621 (introduced by Senator Herbert Kohl, for himself and Senators John Glenn and Carl Levin).

<sup>30</sup> Subcommittee on Government Information and Regulation, *supra* note 26, at p. 9.

rate risk. The Review merely omits an important caveat from the OMB report. Here is the larger context of the single phrase selected by the Review from the OMB report:

“...Under this regime, both Fannie Mae and Freddie Mac survive and return to profitability after the severe downturn. Therefore taxpayer exposure is close to zero under the above scenario.

*“This analysis does not incorporate management and operations risks which, particularly in times of severe economic stress, can rapidly increase potential taxpayer exposure.”*<sup>31</sup>

In other words, the Review fails to alert readers to the limitations of the analysis that were pointed out by OMB. Indeed, a subsequent HUD report has tested the limitations of the OMB scenario and concluded that Fannie Mae and Freddie Mac would pose financial risk to the taxpayer under alternative assumptions.<sup>32</sup>

### ***(3) Analysis of the Fannie Mae Review: Financial Risks Posed by the Activities of Fannie Mae Today***

As the Review points out [p. 56], the Congress responded to the concerns expressed by the Treasury, GAO, and CBO in their reports and enacted an improved regulatory framework for safety and soundness of Fannie Mae and Freddie Mac. However, the final legislative product falls far short of the two bills (S. 1282 and S. 1621) drafted by the Treasury and GAO and introduced in 1991, and far short of the regulatory framework that the Congress has enacted for supervision of commercial banks and thrift institutions.

Some have suggested that the final law represented a victory by Fannie Mae and Freddie Mac in the legislative process, given the starting point that had been provided in the Administration’s original proposal.<sup>33</sup> The new financial regulator of Fannie Mae and Freddie Mac, OFHEO, represented an improvement over the earlier regulatory structure; however, the regulatory framework continues to be deficient in important ways, including with respect to (1) authority to set risk-based capital standards and (2) institutional capacity.

Consider first the issue of capital standards. The authority of the regulator to set capital standards is confined by the “tailored” financial standards mentioned in the Review [p. 56]. In his

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<sup>31</sup> U.S. Office of Management and Budget, *Budget of the United States Government, Fiscal Year 1992*, Part Two (Washington, DC: Government Printing Office, 1991), p. 229 (emphasis added).

<sup>32</sup> U.S. Department of Housing and Urban Development, *Capitalization Study of the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation* (Washington, DC: November 1991), pp. vi–viii.

<sup>33</sup> See, e.g., Kenneth H. Bacon, “Privileged Position: Fannie Mae Expected to Escape an Attempt at Tighter Regulation,” *Wall Street Journal*, June 19, 1992, p. A1; and Stephen Labaton, “Power of the Mortgage Twins: Fannie and Freddie Guard Autonomy,” *New York Times*, November 12, 1991, p. D1.

dissent to the House Banking Committee report on the OFHEO legislation, Representative Jim Leach explained why OFHEO's ability to set capital standards was circumscribed:

“It is also noteworthy—if one’s into gall—that at the insistence of the enter-prises the bill prescribes rigidly narrow tests for the regulator to apply in calculating risk-based capital requirements.”<sup>34</sup>

While the final legislation enacted in 1992 does relax the constrictions somewhat, compared to the House bill, the fact is that Fannie Mae and Freddie Mac currently are subject to far lower capital standards than the government or the markets, as the case may be, impose on any other financial institutions in the United States. Figures 1 and 2, above, taken from 1991 Treasury reports, need to be updated; however, the story they tell about Fannie Mae's thin capitalization and consequent risk to the federal taxpayer remains accurate.

The Review also raises the issue of OFHEO's institutional capacity, stating:

“And there is no mention at all of the fact that our safety and soundness regulation is carried out an office with 63 full-time permanent staff...with a \$15.5 million budget...dedicated exclusively to the regulation of Fannie Mae and Freddie Mac. This is a ratio that far exceeds the resources dedicated to bank regulation.” [p. 56.]

Even conceding that some assumptions are required to compare the resources dedicated to bank regulation, the Review again appears to misapprehend the facts. Table 1 presents a comparison of OFHEO's resources, compared to those of the Federal Deposit Insurance Corporation, the principal federal supervisor of bank safety and soundness. While FDIC does supervise a large number of individual banks, Table 1 reveals that the face value of the federal contingent liability from activities of Fannie Mae and Freddie Mac comes close to the total face value of federal deposit insurance in force for those FDIC-insured banks. The actual government liability in either case can only be determined if an institution fails.

The face value of each of these trillion dollar contingent liabilities is not a perfect measure, as the Review properly points out [pp. 56–57]. However, face value is a useful measure for calculating at least the rough orders of magnitude of ratios such as those in Table 1.

On the one hand, as the Review states [p. 56], the government's contingent liability from Fannie Mae's debt and MBSs is offset by the value of assets in the form of residential mortgages; one could conjecture that such assets on average may be superior to those held by banks. On the other hand, as indicated by Table 1, the government has much less capacity to supervise safety and soundness of Fannie Mae and Freddie Mac than it does with respect to insured commercial banks; moreover, as indicated by Figures 1 and 2, Fannie Mae has only a thin cushion of capital compared with

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<sup>34</sup> U.S. House of Representatives, “Government-Sponsored Housing Enterprises Financial Safety and Soundness Act of 1991,” Report of the Committee on Banking, Finance and Urban Affairs, H.Rpt. No. 102–206, to accompany H.R. 2900, September 17, 1991, at p. 122 (Dissenting Views of Representative Jim Leach).



**TABLE 1**  
**Federal Supervision of Contingent Liabilities:  
Staffing and Budgets**

	FDIC	OFHEO
Face Value, Federal Contingent Liability (FY 1994)	\$1.889 trillion <sup>(2)</sup>	\$1.311 trillion
FY 1995 Staffing (FTEs) <sup>(1)</sup>	10,013 <sup>(3)</sup>	65
FY 1995 Budget	\$462.2 million <sup>(3)</sup>	\$15.45 million
Liability/Staff Ratio	\$189 million per FTE	\$20.2 billion per FTE
Liability/Budget Ratio	\$4,087 per budget dollar	\$84,854 per budget dollar

Sources: contingent liabilities: *Budget of the United States Government, Fiscal Year 1996, Analytical Perspectives*, p. 122 (FY 1994 is the most recent year for which the budget provides figures); staffing and budgets: *Budget of the United States Government, Fiscal Year 1996, Appendix*, pp. 978 (FDIC) and 538 (OFHEO).

Notes:

(1) "FTE" means "full-time equivalent" staff years. OFHEO is permitted to maintain a staff up to the size of its FTE limitation.

(2) The contingent liability figure understates the size of the banks subject to FDIC supervision. This is because the federal budget counts merely that percent of a bank's liabilities that are federally insured, even though the FDIC is responsible for supervising the entire bank.

(3) The federal budget does not include staff and funding for state regulators who supervise many FDIC-insured banks. Also, the budgets of other federal bank regulators are not counted here. Again, this understates the amount of resources that government dedicates to supervising safety and soundness of commercial banks.

commercial banks and this means higher taxpayer risk than otherwise would be the case.

Taxpayer risk from possible bank failures is also mitigated by more than \$20 billion of reserves in the Bank Insurance Fund of FDIC. Unlike commercial banks Fannie Mae and Freddie Mac do not pay annual premiums to build up such a fund as a protection against taxpayer exposure.

In summary, the Review mischaracterizes certain important facts about safety and soundness and today's financial risk from its activities. The reader would be seriously misled in taking at face value the assertion that, "Now as we have continued to grow capital, and with a rigorous regulatory structure in place, *that risk is virtually nonexistent.*" [p. 57, emphasis added.]

Indeed, as noted in the Restructuring Study [pp. 12–13], the risk to taxpayers remains a continuing aspect of GSE status and provides one reason why the government may want to consider restructuring.

## **B. The Financial Risks of Restructuring Fannie Mae and Freddie Mac**

### ***(1) Position Statement: The Fannie Mae Review***

The Review expresses a number of fears about the “potential for pervasive financial harm” [p. 73]. These include the fear that “...privatization could cause a significant reduction in the value of outstanding debt and equity securities.” [p. 61.]

There is additional fear that, because of the holders of these securities, “Full privatization could have adverse ripple effects throughout the financial industry.” [p. 70.] For example, “as of December 31, 1994, commercial banks alone held nearly \$4.2 billion of Fannie Mae and Freddie Mac stock.” [p. 70.]

Finally, there is the fear that “...full privatization may well increase the risk to taxpayers when possible payments to dissenting shareholders and guarantees to holders of outstanding debt are taken into account.” [pp. 71–72.]

### ***(2) Analysis of the Fannie Mae Review: Financial Risks of Restructuring***

Consider each of these risks in turn. First, the Review is correct in observing that there is some risk to shareholders that restructuring will deprive them of the generous returns on equity that they currently enjoy. As was discussed above, this potential deprivation is the primary reason why the Review expects some shareholders to object, dissent, disapprove, and litigate to prevent restructuring.

The issue of fairness to shareholders is an important one for the court to resolve. On the one hand, as was stated in the Restructuring Study [p. 41], “...it behooves the government to deal fairly with shareholders of all classes.”

On the other hand, such fairness does not mean that the government is obliged to keep Fannie Mae and Freddie Mac in business in perpetuity, just so that the shareholders can enjoy generous returns on their equity. Indeed, as was pointed out in the Restructuring Study [p. 40], the Fannie Mae charter expressly reserves the power of the Congress to terminate Fannie Mae’s corporate existence. As is discussed above, the court must balance the equities that are at stake in restructuring when it decides upon possible transfer payments either to or from shareholders as a part of its final restructuring plan.

The Review raises a second important issue when it states that \$4.2 billion of Fannie Mae and Freddie Mac stock is held by commercial banks. OFHEO reports that at year-end 1994 equity stock of Fannie Mae and Freddie Mac totalled \$14.7 billion (\$9.5 billion for Fannie Mae and \$5.2 billion for Freddie Mac). Thus, commercial banks held 29% of outstanding Fannie Mae and Freddie Mac stock; presumably thrifts hold additional amounts of GSE stock. The risk-based capital rules applicable to banks and thrift institutions fail to capture the actual risk of such stockholdings.

The Review is correct in raising this issue: To prevent adverse ripple effects (whether from restructuring or any other potential change in the value of equity stock), the Congress would be well advised to repeal the laws that today permit banks, thrifts, credit unions, and other GSEs to hold GSE stock without regard to the investment limitations that apply to their holdings of other common stock. Unlike GSE debt obligations or GSE MBSs, no perception of an implicit government guarantee attaches to holdings of GSE stock. A transition period of several years, starting immediately, would help the markets adjust to this change and thus protect banks and thrifts from the ripple effects noted in the Review.

The Review also expresses fears about the effects of restructuring on holders of Fannie Mae and Freddie Mac debt obligations. By contrast to the Review's solicitude for shareholders' interests in protecting the status quo, such fears for GSE debtholders are largely unfounded. This is because of the protection of GSE debt through the widespread perception of an implicit government guarantee.

The perception of implicit government backing of GSE debt distinguishes such obligations from the debt of the Marriott Corporation or the Eurobonds that are mentioned as object lessons in the Review [p. 67, and p. 70, fn. 66, respectively] of actual or potential loss in value. In the Eurobond example, the Review cites a proposed change in tax treatment that is similarly irrelevant here.

The perception of an implicit government guarantee can help to calm the concerns of investors in GSE debt or MBSs as to possible changes in value due to restructuring. Indeed there are specific examples of the strength of the perception that can allay fears raised in the Review.

One example comes from Fannie Mae itself. Due to a serious mismatch of the company's assets and liabilities, Fannie Mae found itself with a substantial negative market-value net worth in the early 1980s. Yet, major credit rating services stated that they would consider Fannie Mae obligations to be eligible investments for AAA-rated structured financings. Moody's Investors Service stated:

"Given FNMA's high leverage and balance sheet mismatch, FNMA's capital base would be deemed inadequate for a corporation without government ties. However, in view of the government's moral obligation to support FNMA and the resulting implicit government backing, FNMA continues to enjoy access to capital markets, thereby providing sufficient time for FNMA to address its mismatch."<sup>35</sup>

A second example comes from the Farm Credit System, another GSE. In 1985 the Governor of the Farm Credit Administration announced that the GSE could not meet its financial obligations without an infusion of federal funds. While borrowing costs did rise at that point, they remained

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<sup>35</sup> *Moody's Bond Survey*, Vol. 76, pp. 4506–10 (March 12, 1984), quoted in U.S. Department of Housing and Urban Development, *1986 Report to Congress on the Federal National Mortgage Association* (Washington, DC: June 29, 1987), p. 53. At the time, Fannie Mae had a negative market value net worth of several billion dollars. See the *1986 Report*, Table V-3 ("Estimated Market Value and Duration of FNMA's Assets and Liabilities"), p. 100.

close to yields of Treasury securities. Thus, in late 1986 spreads of Farm Credit System obligations were 89 basis points above Treasuries of comparable maturity.<sup>36</sup> Even after the Farm Credit System recorded \$4.6 billion of losses in 1985 and 1986, Farm Credit obligations remained eligible investments for AAA-rated debt.<sup>37</sup>

A third example comes from the Financing Corporation (FICO), whose obligations are structured to trade as GSE securities. Even though FICO has a negative net worth, its obligations trade as agency status securities at spreads close to Treasuries.<sup>38</sup> FICO obligations continue to be eligible for AAA-rated structured financings despite uncertainties about the corporation's ability to meet its future obligations from available funds.<sup>39</sup>

Now observe that, in contrast to the Farm Credit System in 1985 and FICO today, restructuring is not likely to involve a failure of the Fannie Mae liquidating corporation to meet its obligations from available funds. (This liquidating corporation is part of either of the first two restructuring options presented in the Restructuring Study, pp. 29–33.)

As the Review points out, "...every debt and mortgage-backed security issued is, in effect, collateralized by one of the strongest kinds of collateral there is—people's homes." [p. 56.] With this kind of collateral, plus any additional capital that the court requires shareholders to leave behind as a reserve, the liquidating corporation should be able to satisfy the claims of holders of GSE debt and MBSs. Under this approach the shareholders would then receive the residual value of the liquidating corporation once the outstanding obligations and MBSs had been defeased or retired.

Of course, as was seen when the savings and loan industry failed despite its heavy investment in home mortgages, and in the early 1980s when Fannie Mae's portfolio went under water, there is a chance that mortgage collateral alone would not protect against financial difficulty. In the unlikely event that an explicit federal guarantee would be necessary to reassure holders of GSE debt obligations and MBSs, the Congress could authorize (but not direct) the court to provide it.<sup>40</sup>

In short, restructuring is unlikely to create significant adverse ripple effects for the state and local governments, pension funds, or other holders of today's GSE obligations and MBSs. The

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<sup>36</sup> U.S. Office of Management and Budget, *Special Analyses: Budget of the United States Government, Fiscal Year 1988*, Special Analysis F, "Federal Credit Programs" (Washington, DC: Government Printing Office, 1987), pp. F-27 and F-28.

<sup>37</sup> "Farm Credit System's 'AAA' Eligibility Monitored," *Standard & Poor's Creditweek*, July 20, 1987, p. 13.

<sup>38</sup> A copy of the balance sheets of the Financing Corporation, showing a negative net worth, can be found in Thomas H. Stanton, *A State of Risk* (New York, NY: HarperCollins, 1991), p. 147.

<sup>39</sup> Standard & Poor's Corporation, "FICO Interest Payments Potentially at Risk," *Standard & Poor's Creditweek*, March 20, 1995, p. 41.

<sup>40</sup> Under principles of federal credit budgeting, the subsidy estimates for applying a full-faith-and-credit guarantee to obligations backed by the perception of an implicit guarantee should not be high. Moreover, the necessary credit subsidy would be hard to estimate beforehand and thus is unlikely to be scored for federal budget purposes. Again, if it is directed as a part of a judicial settlement, the credit subsidy is likely to be considered a mandatory outlay for federal budget purposes.



private mortgage market is also likely to be able to adapt readily to the modest increase in mortgage rates that might be occasioned by restructuring and the end of today's government-subsidized GSE status for Fannie Mae and Freddie Mac. The only parties with demonstrably major interests against restructuring would seem to be shareholders and managers of today's GSEs.

Finally, the Review has expressed fears about taxpayer financial exposure from the restructuring process itself. It is worth repeating the eloquent explanation why this is not a major issue that is provided by the Review itself:

“...every debt and mortgage-backed security issued is, in effect, collateralized by one of the strongest kinds of collateral there is—people's homes.” [p. 56.]

Restructuring under the supervision of OFHEO and under the auspices of a federal court can contain the otherwise unquantifiable management and operations risks that can affect GSEs as privately owned companies with an implied government guarantee. That leaves the restructuring with the more limited set of risks that is represented by interest rate risk and credit risk. The managers of the liquidating companies are likely to be able to handle those risks responsibly and in a manner that is properly accountable to the court.

As is discussed in the Restructuring Study [pp. 30–33], financial specialists seem to concur that risks of the new companies can be separated financially from those of the liquidating companies so that the financial risks from activities of the new companies are borne by the shareholders and debtholders of those new companies and not by the federal taxpayer. Restructuring can be carried out in a manner that reduces rather than increases the level of taxpayer exposure that is created by today's GSEs.

## IV. FANNIE MAE'S MISSION

### A. Position Statement: The Fannie Mae Review

The Review devotes its first eight pages to stating the importance of the company and the public purposes that it serves. The Review quotes a long passage from the Fiscal Year 1996 budget in support of its contention that Fannie Mae is important to the American system of housing finance:

“Similarly, the administration's budget for 1996 concludes the need for Fannie Mae is not only ongoing, but growing as it states:

‘Acting as a national intermediary between homebuyers and world capital markets it [Fannie Mae] provides greater efficiency, liquidity, and reliability in part because of its government ties. In recent years, Fannie Mae has become even more important to effective home finance delivery by assuring depositories ready access to mortgage funds when demand outpaces their deposit or capital base.’”

[Review at p.51, footnote omitted.]

In a footnote to the quotation, the Review cites the Office of Management and Budget, *Budget of the United States Government FY 1996*, at p. 1118 (1995).

## B. Analysis of the Fannie Mae Review

Several points are appropriate here. First, many of these issues were referenced in the Restructuring Study (Section II–A, “The Benefits of Using Government-Sponsored Enterprises To Serve the Residential Mortgage Market,” pp. 6–10).

Second, the issue of costs and benefits of providing GSE status to Fannie Mae and Freddie Mac was largely outside the scope of the paper that CBO commissioned. The reader should look to the other studies commissioned by the government for a detailed analysis of the costs and benefits of the activities of the two GSEs.

Third, it is important to note that once again shareholders come first in managers’ priorities in directing the mission of an investor-owned GSE such as Fannie Mae or Freddie Mac. It is well-settled law that the management of an investor-owned company may not divert significant amounts of the shareholders’ money to purposes other than profitable activities.<sup>41</sup>

This common law principle may be superseded to a greater or lesser extent by statutory law. The Fannie Mae and Freddie Mac charter acts make clear, for example, that their corporate activities with respect to low- and moderate-income housing should involve “... a reasonable economic return that may be less than the return earned on other activities...”<sup>42</sup>

It is interesting to note that the Review essentially argues that Fannie Mae and Freddie Mac should keep their status as a duopoly based upon government-conferred benefits. In return they will help to accomplish objectives such as standardization and uniformity and innovation [pp. 51–52] that might not occur the same way in more competitive markets.

This argument has been made by monopolists in the past. For example, AT&T argued that it could provide its public benefits in a manner superior to the results of a free market. Again the validity of such arguments may relate to the lifecycle of the particular monopolist and the develop-

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<sup>41</sup> *Dodge v. Ford Motor Co.*, 204 Mich. 459, 170 N.W. 668 (1919). Compare *A.P. Smith Mfg. Co. v. Barlow*, 13 N.J. 145, 92 A2d 581 (1953).

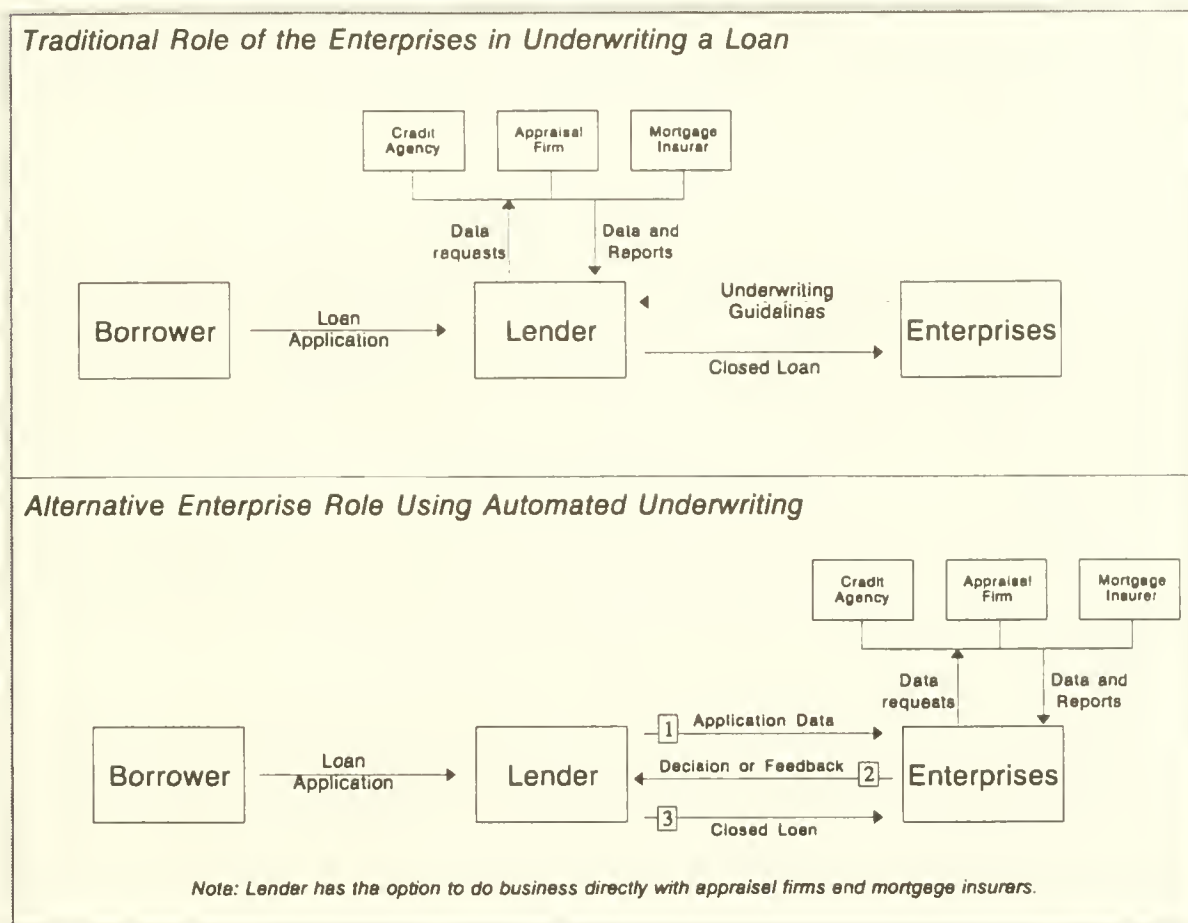
Fannie Mae’s then-Chairman and Chief Executive Officer once sounded this theme in discussing his company’s low-income housing initiatives: “Remember, we don’t do this as a charity. We make money doing these things. I’m not hired to give away stockholders’ money.” Quoted in Stephen Taub and Jackey Gold, “Twilight Zone,” *Financial World*, December 12, 1989, p. 46.

<sup>42</sup> Section 301 (3) of the Fannie Mae Charter Act, 12 U.S.C. Sec. 1716; Section 301 (b) (3) of the Freddie Mac Charter Act, 12 U.S.C. note to Sec. 1451.

ment of its market segment. In the early years of telephone service, Alan Stone suggests,<sup>43</sup> AT&T did provide superior levels of innovation; today a more competitive telecommunications market appears to be implementing innovations at an unprecedented rate.

If shareholder interests are the prime determinant of technological innovation, then one would expect a GSE to use new technologies to attempt to increase market power. The recent OFHEO report indicates how Fannie Mae and Freddie Mac are using the new automated underwriting technologies to increase shareholder returns.<sup>44</sup> Figure 3, taken from the OFHEO report, shows

**FIGURE 3**  
**The Effect of Automated Underwriting on the Enterprises' Role in the Loan Origination Process**



Source: Office of Federal Housing Enterprise Oversight, *Annual Report to Congress 1995*, p. 4.

<sup>43</sup> Alan Stone, *Public Service Liberalism: Telecommunications and Transitions in Public Policy* (Princeton, NJ: Princeton University Press, 1991), pp. 67–71.

<sup>44</sup> Office of Federal Housing Enterprise Oversight, *Annual Report to Congress 1995* (Washington, DC: 1995), pp. 1–7.

how the enterprises can use their new technologies to move relationships with credit agencies appraisal firms, and mortgage insurers from primary lenders to the GSEs. On the other hand, the case of the Standard Oil Company and the thermal cracking process [Restructuring Study, p. 16] shows how a company with market power can retard the development of technologies.

Fourth, the extensive quotation from the FY 1996 budget [Review, p. 51] raises an important issue: GSEs embody a mix of public and private attributes that tend to confuse government officials about the need to hold each GSE accountable through an arm's-length relationship.<sup>45</sup> The federal budget document, for example, includes large amounts of text written by the GSEs themselves.

Here, the Review cites—as evidence of the views of the Administration—words of praise that Fannie Mae wrote for itself for inclusion in the Budget of the United States Government. To prevent such confusion in the future, OMB should instruct the regulator of each GSE—OFHEO in the case of Fannie Mae and Freddie Mac—to provide all budget submissions that are published with respect to each GSE. This would assure the preparation of budget information by a more objective source than the GSEs themselves.

## V. CONCLUSION

The Restructuring Study presented an analytical framework and concluded (1) that it is possible to design an effective process for removing GSE status from Fannie Mae and Freddie Mac and (2) that one result of restructuring would be a reduction in the financial risk to taxpayers from the activities of Fannie Mae and Freddie Mac. The Review provides an opportunity in this analysis to confirm the utility of the original framework and add supporting documentation, to focus the original conclusions, and to suggest additional policy options.

The Review is a statement on behalf of the largest and most powerful GSE and its shareholders about the disadvantages of restructuring. It vigorously attacks the concept and asserts that restructuring is risky and unwise. The Review provides readers with the most comprehensive set of arguments that the GSE has yet made on behalf of the status quo.

This is a boon to policymakers who now can contrast the points made in the Review with those of the Restructuring Study and this supplementary analysis. Such informed consideration can provide the basis for making more confident judgments about (1) the advantages and disadvantages of restructuring Fannie Mae and Freddie Mac, and (2) how to undertake such a process in the most effective manner.

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<sup>45</sup> As Harold Seidman points out, "While called 'private,' these enterprises really function in a *terra incognita*, somewhere between the public and private sectors....These maverick organizations are able to exploit the ambiguity of their legal status to eliminate or reduce accountability to the government, their shareholders,....and the public." Harold Seidman, "The Quasi World of the Federal Government," *The Brookings Review*, Summer 1988, pp. 23–27 at p. 25.



**THE EFFECTS OF THE FEDERAL NATIONAL  
MORTGAGE ASSOCIATION AND THE FEDERAL HOME LOAN  
MORTGAGE CORPORATION ON CONVENTIONAL  
FIXED-RATE MORTGAGE YIELDS**

**Robert F. Cotterman  
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*Commentaries on the October 29, 1994 draft of this paper by James D. Shilling and Douglas O. Cook and Fannie Mae's review of the draft paper begin on pages 205, 211, and 218, respectively, accompanied by comments on the Ambrose-Warga paper.*

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*Mr. Cotterman and Mr. Pearce both indicated that they had no prior or current relationships with Fannie Mae or Freddie Mac.*

*A draft of the Cotterman-Pearce paper was submitted on October 29, 1994 and presented in a seminar at the U.S. Department of the Treasury on December 1, 1994. The Ambrose-Warga paper was also presented on this occasion. Following the seminar, Cotterman-Pearce substantially revised their paper; they submitted the final version on May 31, 1995.*

## I. INTRODUCTION AND SUMMARY OF PRINCIPAL FINDINGS

In today's residential mortgage market, the Federal Home Loan Mortgage Corporation (Freddie Mac) and the Federal National Mortgage Association (Fannie Mae) are central players. In recent years the major function of these two government-sponsored enterprises (GSEs) has been to purchase conventional loans to use as collateral for mortgage-backed securities (MBSs).<sup>1</sup> More than half the eligible conventional mortgages originated are now "securitized" by the two GSEs.

Although Freddie Mac and Fannie Mae dominate much of the conventional market, their influence has been muted in some segments. As federally chartered corporations, Freddie Mac and Fannie Mae are not permitted to purchase loans with balances above the conforming loan limit. Therefore, development of a secondary market in "jumbo" loans (those above the conforming limit) has been left to the private sector. In addition, securitization of adjustable-rate mortgages has been less prevalent, so here, too, the GSEs' influence has been lower.

Nevertheless, the GSEs' area of dominance represents the lion's share of conventional originations. The conforming loan limit varies with the median price of homes purchased with conventional mortgages,<sup>2</sup> and it is high enough that 90% to 95% of such loans are at or below the limit (see Tables 1 and 2). Adjustable-rate mortgages generally account for less than one-third of conventional nonjumbo purchase-money originations, and between 1991 and 1993 the fraction was down to one-fifth.

The net effect of this arrangement is a segmented mortgage market. In the market for conforming loans, very high percentages of new fixed-rate loans are securitized, and Freddie Mac and Fannie Mae have essentially no private competition for loans to high-quality borrowers. In the market for jumbo loans, relatively few loans have been securitized, at least until recently, and the active parties are private firms.

This segmentation has been reflected in mortgage rates. Studies by Hendershott and Shilling (H-S) (1989) and ICF, Inc. (1990), have found a disparity on the order of 30 basis points between fixed-rate loans with balances above and below the conforming loan limit. This result was based on loans closed by California savings and loans (S&Ls) in May, June, and July of 1986 and 1987. Loans eligible for purchase by Freddie Mac or Fannie Mae have had lower rates partly because the GSEs can package conforming loans into securities that investors find very attractive. This advantage increases the demand for conforming loans by widening the base of potential investors.

The GSEs' relationship with the federal government has been an important contributor to the success of MBSs. Because Freddie Mac and Fannie Mae have federal charters, their securities and debt instruments are treated by the investment community as having the implicit backing of the U.S.

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<sup>1</sup> Early in its history, Fannie Mae bought mortgages for its portfolio. Since the early 1980s, however, Fannie Mae has used very high percentages of purchased loans as collateral for mortgage securities.

<sup>2</sup> See Lea (1986/87).

**TABLE 1**

**Characteristics of Single-Family, Conventional,  
Purchase-Money Originations**

Year	Conforming Mortgages as Percent of Total	Fixed-Rate Mortgages as Percent of		
		Total	Conforming Mortgages	Jumbo Mortgages
<b>A. PERCENTAGES BASED ON NUMBER OF LOANS</b>				
1989	90.7	63.2	66.0	35.8
1990	92.0	72.4	75.0	42.5
1991	92.8	77.5	79.3	54.1
1992	93.5	79.5	81.1	57.8
1993	93.6	80.0	81.9	53.5
<b>B. PERCENTAGES BASED ON DOLLAR VOLUME OF LOANS</b>				
1989	77.9	58.4	64.7	36.2
1990	80.8	67.6	73.6	42.6
1991	82.4	73.8	77.9	54.4
1992	82.8	76.4	80.4	57.4
1993	83.0	76.2	80.8	53.6

Source: MIRS.

**TABLE 2**

**Conforming Loan Limit, 1980-1994  
(Single-Family, 1-Unit Properties)**

Year <sup>1</sup>	Conforming Loan Limit	Year <sup>1</sup>	Conforming Loan Limit
1980	93,750	1988	168,700
1981	98,500	1989	187,600
1982	107,000	1990	187,450
1983	108,300	1991	191,250
1984	114,000	1992	202,300
1985	115,300	1993	203,150
1986	133,250	1994	203,150
1987	153,100		

<sup>1</sup> Limits are 50% higher in Alaska, Hawaii, and Guam.  
Limits are 50% higher in the Virgin Islands for 1993-94.

Source: Inside Mortgage Finance Publications, Inc.



Treasury. Consequently, they can issue essentially default-free securities at a relatively low cost. However, the GSEs' private cost may not reflect total social costs, and a question of interest is how mortgage interest rates would adjust if Fannie Mae and Freddie Mac securities were not perceived to have the implicit backing of the Treasury.

The estimated differential between conforming and nonconforming loans cited above is usually considered to be the magnitude of the effect of Freddie Mac and Fannie Mae securitization on interest rates charged on conforming fixed-rate loans. Although the differential is probably not a pure measure of the GSEs' effect on mortgage rates, it provides a good first-order approximation. If a large fraction of that differential is attributable to the agency status of Freddie Mac and Fannie Mae, then privatization of the two institutions would risk a nontrivial increase in rates.

The mortgage market, however, has evolved considerably since 1986 and 1987, when the data used in those studies were collected. Risk-based capital standards for banks and thrifts have been introduced, a development that likely increased the demand for GSE securities relative to whole mortgage loans. In addition, the issuance of private MBSs became substantial, rising from less than \$13 billion in 1987 to approximately \$100 billion in 1993. This expansion generated additional demand for nonconforming loans and probably put downward pressure on the conforming loan differential.

In this study we analyze data on fixed-rate mortgage loans for evidence that jumbo loans are not perfect substitutes for conforming loans. Our primary focus is to extend the analysis of interest rates by H-S and ICF. Using data from 1989 through 1993, we estimate conforming loan differentials for long-term, fixed-rate mortgages. In addition, we analyze loan amounts in the neighborhood of the conforming loan limit. If mortgage rates or other loan terms are more attractive for conforming loans, we expect to see a concentration of loans with amounts exactly equal to the conforming limit, while immediately above the limit we will see very few loans.

We extend previous research in some additional respects. The earlier studies analyzed loans originated by S&Ls only, and they focused primarily on loans originated in California.<sup>3</sup> We study loans originated by mortgage banks as well as by S&Ls, and we look at loans in a group of other large states. To obtain a sense of why the differential varied over the period, we use regression analysis to relate changes in the estimated conforming loan differential to the issuance rate and outstanding volume of private securities and to variables capturing changes in the financial and economic environment. In estimating the conforming loan differentials themselves, however, our approach follows closely the strategy used by H-S. We use data from the same source (the Mortgage Interest Rate Survey, or MIRS), similar sample restrictions, and the same statistical model of mortgage-loan interest rates.

Our results confirm that interest rates on jumbo loans continue to be higher than rates on similar conforming loans. For loans closed between 1989 and 1993, we estimate that loans with

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<sup>3</sup> ICF did look at loans from some states other than California.

balances equal to or below the conforming limit had interest rates that were 15 to 60 basis points lower than rates on jumbos. The size of the differential varied over the period. The largest differentials were estimated for 1989 and 1991, when the spread was between 45 and 55 basis points. The differential was at its lowest in 1993; estimates for that year were generally in the neighborhood of 25 basis points and, in the final two quarters, even lower.

The distribution of loan amounts also shows strong evidence that fixed-rate jumbo loans are not perfect substitutes for fixed-rate conforming loans. Aggregating across the 5 years, 3.0% of California fixed-rate loans had a loan amount exactly equal to the conforming loan limit. This represents about 15% of all fixed-rate loans with amounts greater than or equal to the limit. Below the limit about 1.9% of loans are for amounts within \$2,000 of the conforming limit. Above the limit less than 1% of loans are for amounts within \$10,000 of the limit. When adjustable-rate mortgage loans (ARMs) are subjected to the same analysis, the concentration of mass at the conforming limit is less prominent. This lower concentration is consistent with the GSEs' lower level of influence in the ARM market.

This "stacking" of fixed-rate loan amounts at the conforming limit indicates that many fixed-rate borrowers are structuring their home financing strategies to obtain conforming loans. The lower interest rate available on conforming loans would be a strong incentive to keep the loan amount from exceeding the limit. The phenomenon is present in each of the years we study, with California fixed-rate loans at the conforming loan limit accounting for a minimum of 12% of all California fixed-rate loans at or above the limit.

Our efforts to identify forces influencing the path of the jumbo/conforming differential over time indicate that the differential seems to be related to private securitization activity. In a regression formulation, the differential is negatively related to the percentage of jumbo originations securitized or the outstanding level of jumbo securities. Although we are hesitant to attach any structural significance to this result, we regard it as a useful summary of the relationships during the period under investigation.

We interpret the results as evidence that interest rates on fixed-rate conforming loans continue to be more attractive than rates on similar jumbo loans. We regard 25 to 40 basis points as the core range of the conforming loan differential. In view of the fact that private securitization is no longer a novelty, the differential primarily reflects the advantages of agency status.

Our estimates cannot be applied to all hypothetical changes in the institutional framework with equal degrees of confidence. We recommend caution in using this range as an estimate of the change in conforming loan rates resulting from complete withdrawal of agency status from Fannie Mae and Freddie Mac. Such a change would require large adjustments in the financial markets, and the conforming loan differential might not be a good guide to the changes in mortgage rates under these conditions. A more straightforward application would be using the differential to project the effects of modest changes in the scope of the GSEs' operations, such as a 10% reduction in the conforming loan limit.

## II. BACKGROUND

### A. The Market for Conforming Mortgage Loans

#### *(1) Evolution*

The long-term, fixed-rate residential mortgage has historically been unwelcome in mainstream portfolios. Prior to the 1930s, most mortgages were non-amortizing balloon-type loans with maturities of less than 5 years. The 30-year fixed-rate mortgage that is taken for granted today became established only with federal encouragement. Important elements were the Federal Housing Administration (FHA), Fannie Mae, and the S&L Industry, along with the combination of subsidies and restrictions that were associated with the S&Ls and the Federal Home Loan Bank System.

FHA insurance played a significant role in making the modern mortgage a fixture in the marketplace. With FHA backing, lenders who had previously refused to make 50%-down balloons were willing to originate 20%-down, 20-year fixed-rate loans, even during the 1930s. This type of loan instrument required better property appraisals and underwriting practices, and improvements in these areas evolved over time. As they did, uninsured loans with similar terms became more common.<sup>4</sup>

Nevertheless, mortgage loans remained concentrated in specialized portfolios, particularly thrifts. This concentration remained high throughout the first three decades of the postwar period. As recently as the late 1970s, thrifts held nearly one-half of outstanding residential mortgage assets in the form of whole, fixed-rate loans.<sup>5</sup>

An important contributor to the concentration of mortgages in thrift portfolios was the illiquidity of the mortgage instrument.<sup>6</sup> In the conventional market, “whole loans” are subject to credit risk, which arises from the possibility that the borrower may not make all payments on schedule and, in the case of default, from the possibility that the collateral may not cover the loan balance and transaction costs. To limit this risk, buyers of whole loans would need to undertake costly examination of each individual loan they planned to purchase. The cost of such a review, and the expertise needed to conduct it, prevented an active secondary market in whole loans from developing.<sup>7</sup> Because few mainstream investors were comfortable allocating significant portions of their

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<sup>4</sup> See Canner, Passmore, and Mittal (1994) and Szymanoski, Reeder, and Neal (1994) for historical background on private and government mortgage insurance.

<sup>5</sup> See Barth (1991) for a discussion of the early history of S&Ls.

<sup>6</sup> The tax breaks and other subsidies granted to thrifts in return for the dedication of their portfolios to mortgages were also important. The tax breaks were largely phased out between 1962 and 1986. See Hendershott and Villani (1980) and McNulty and Pearce (1994) for more discussion.

<sup>7</sup> Even government-insured loans carry some risk to an investor who, in the event of widespread defaults, might incur significant transaction costs collecting insurance payments on each defaulted loan individually.



portfolios to a long-term illiquid asset, conventional mortgages remained concentrated in portfolios of specialized investors such as thrifts.<sup>8</sup>

The introduction of passthrough securities for mortgages overcame major obstacles to liquidity. In the passthrough structure, a pool of mortgages is assembled and security is issued that represents an undivided interest in the cash flow of the mortgages in the pool. To minimize the transaction cost described above, the security is guaranteed against default risk, either by the issuer or a third party.<sup>9</sup>

The resulting MBSs appealed to a wider set of investors than did whole loans. MBSs were issued in large denominations, and the mortgages backing the securities were underwritten to a more uniform set of standards than had previously been the case when most loans were made by small, independent S&Ls. Homogeneity of MBSs, combined with the GSE guarantee, made the securities easy to trade and highly liquid. As a result, investors could not only adjust their position through purchases and sales, they could use the securities as collateral for short-term loans such as repurchase agreements.

A remaining idiosyncrasy of mortgages that is retained by the passthrough security is the variability of cash flows. Homeowners may repay their loans at any time, and this ability introduces considerable risk into the mortgage security that is not present in long-term Treasuries. Prepayments have a stochastic component, but they also vary systematically with interest rates and other factors. This has led mortgage market participants to make sizable investments in technology for predicting prepayments and valuing mortgage securities. It has also created a market for multiclass securities such as Collateralized Mortgage Obligations (CMOs) and Real Estate Mortgage Investment Conduits (REMICs).

CMOs were introduced by Freddie Mac in 1983, while REMICs were created by the Tax Reform Act of 1986. These multiclass securities may be backed by mortgage pools or by passthrough securities. The major objective in the design of these securities was to allocate mortgage cash flows to bond classes of different maturities in a way that tailors prepayment risk and maturity in each class to the preferences of different types of investors.

These securities have been successful in further broadening the investor base for mortgage assets. Early multiclass securities used GSE passthroughs or conforming loans as collateral, although recently many have been collateralized by nonconforming loans.

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<sup>8</sup> Fannie Mae in 1938 began trading in FHA and VA whole loans, providing a secondary market in that sector.

<sup>9</sup> The nature of the guarantee varies across the enterprises. The Government National Mortgage Association (Ginnie Mae) guarantees full and timely payment of principal and interest, and its guarantee carries the full faith and credit of the Treasury. Fannie Mae provides a similar guarantee, but Treasury backing is not explicit. Freddie Mac provides the same guarantee as Fannie Mae in its Gold program, but its older Cash and Guarantor programs guarantee timely payment of interest and ultimate payment of principal.



## *(2) The Role of the GSEs*

The market for mortgage securities is dominated by Fannie Mae, Freddie Mac, and the Government National Mortgage Association (Ginnie Mae). Each supports a segment of the mortgage market. Ginnie Mae, a federal government agency, securitizes loans insured by FHA or guaranteed by the U.S. Department of Veterans Affairs (VA). The two GSEs, Freddie Mac and Fannie Mae, issue securities backed by conventional mortgages that are within the conforming loan limit. Ginnie Mae and Freddie Mac began issuing passthroughs in 1970 and 1971. Fannie Mae did not enter this market until 1981. The securities issued by these three enterprises all are perceived by investors to carry at least the implicit backing of the federal government, and thus investors regard them as virtually free of default risk.

The issuance of securities by Freddie Mac and Fannie Mae expanded dramatically in the middle 1980s. Although MBSs had been issued by the GSEs since the early 1970s, they achieved a “critical mass” only in 1985–86, when issuance jumped from the \$35 billion level (the approximate average for 1982–84) to \$160 billion in 1986.<sup>10</sup> This rapid expansion was accompanied by the rise to prominence of CMOs.

These securitization programs have been extremely successful in attracting fixed-rate mortgages for collateral. Virtually all FHA/VA loans are packaged into Ginnie Mae securities, and very high percentages of fixed-rate conforming loans are purchased by Freddie Mac or Fannie Mae. However, the GSEs have not purchased adjustable-rate loans in the same proportion, and a relatively small percentage of these loans are securitized.<sup>11</sup>

Another segment of the mortgage market where securitization has not penetrated far, at least until recently, is the jumbo loan. Loans above the conforming limit are ineligible for purchase by the GSEs, and the private sector was behind them in building a securitization program. In the late 1980s, private issuance of mortgage securities expanded, but until then the primary effects of securitization on the jumbo market were indirect.

The widespread adoption of the passthrough security has been an important contributor to the widely documented transformation of the mortgage business. Mortgage companies operating nationally or regionally now compete with local banks and thrifts for mortgage loan customers. Mortgage interest rates are much more responsive to developments in national and international capital markets than in the past, and interest rates on deposits have much less influence.<sup>12</sup> Mortgage interest rates are now less variable within and across markets at any given time, and the geographic allocation of funds is more efficient.

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<sup>10</sup> For additional data see Cotterman (1994) and *Inside Mortgage Finance* (1995).

<sup>11</sup> The appeal of ARMs to thrifts and other depositories is apparently an important element in the low securitization rate of ARMs. In the current accounting and regulatory environment, the values thrifts place on ARMs in their portfolios are higher than the prices the GSEs are offering.

<sup>12</sup> Hendershott and Van Order (1989).

An important consequence, from the perspective of this study, is the tiering of mortgage rates in the different segments of the market. Large-scale securitization first occurred in the government-insured sector. Black, Garbade, and Silber (1981) found that the Ginnie Mae passthrough program successfully lowered rates on FHA/VA loans relative to a portfolio of Treasuries with similar expected cash flows. The effect of the GSEs' securitization on the conventional market was addressed in later research by Hendershott and Shilling (1989). They found that interest rates on conforming loans originated in California in 1986 had been reduced by about 25 basis points relative to rates on jumbo loans. Subsequent research by ICF found a somewhat smaller differential for 1987.<sup>13</sup>

## **B. The Market for Jumbo Loans**

### ***(1) Recent Developments in Private Mortgage-Backed Securities***

Until the late 1980s, private issuance of MBSs was low. Private issuers could not compete with the GSEs for conforming loans, and few were positioned to overcome the barriers of bringing securities into what was a thin market with a limited track record. After 1988 private issuance of MBSs rose sharply. Figure 1 shows private securitization for the 5 years beginning in 1989 relative to the rate of jumbo originations.<sup>14</sup> The percentage of jumbo originations securitized increases steadily through 1993. Nevertheless, the percentage in 1993 is still below the percentage of conforming loans securitized.

Table 3 shows the issuance rates for the various institutions involved in the private mortgage securities market. The data indicate that mortgage banks and private conduits have been the major contributors to growth in issuance. The importance of thrifts has declined sharply since 1988, and commercial banks' share of this market has declined since 1990. Investment banks have retained a relatively steady presence, but their share of the market has generally been below 20%.

Several developments combined to make the environment conducive to higher levels of private MBS issuance in the late 1980s and early 1990s. The investor community, the issuers of mortgage securities, and investment banks were all prepared to capitalize on a surge of new supply when long-term interest rates fell in the early 1990s.

Some important developments were intangible. The 1980s boom in the GSEs' securitization activities produced an expansion of intellectual and institutional capital among private sector participants in the securitization process. Securitization on a large scale is still a recent phenomenon, even for the GSEs. As noted above, GSE MBSs did not achieve a critical mass until the mid 1980s. Private sector resources to trade, analyze, and market mortgage securities expanded accordingly. Thus, the resources that could be used to achieve growth in private securitization were not in place before the late 1980s.

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<sup>13</sup> The analyses in the H-S and ICF papers are discussed in more detail in Section III-A.

<sup>14</sup> Private securitization activity in this figure excludes securities issued by the Resolution Trust Corporation.

A related factor was increasing receptivity among investors for securities backed by mortgages. In the middle to late 1980s, secondary market participants produced a large volume of educational material to familiarize investors with the special properties of mortgage securities. Presumably investors' generally favorable experiences with the GSEs' securities helped condition them to accept private securities. After some success with the initial issues, subsequent issues would be marketable to a larger pool of investors.<sup>15</sup>

Investor exposure to non-GSE securities was heightened by the entrance of the Resolution Trust Corporation (RTC) into the market. In 1991 RTC issued almost \$10 billion in securities, and the next year it issued \$15.1 billion. These numbers put RTC among the top issuers for those 2 years,

**FIGURE 1**

**Conventional Mortgages Securitized**



Source: The Mortgage Market Statistical Annual for 1994.

<sup>15</sup> The rating agencies were learning over time, as well. One would expect them to rate early issues very conservatively, and later, after the passage of time had allowed the building of a database, feel more comfortable about applying double- and triple-A ratings on well-underwritten securities.

**TABLE 3**  
**Issuers of Non-GSE Mortgage Securities**

	\$ Billions										Percent			
	1993	1992	1991	1990	1989	1988	1993	1992	1991	1990	1989	1988		
Commercial Banks	10.45	13.33	9.44	7.13	2.67	2.18	10.6	14.9	19.0	29.2	18.8	13.8		
Investment Banks	14.82	11.08	6.45	3.07	2.70	3.80	15.0	12.4	13.0	12.6	19.0	24.0		
Thrifts	0.74	1.25	3.02	3.50	4.06	7.89	0.8	1.4	6.1	14.3	28.5	49.8		
Mortgage Banks	34.13	24.70	8.15	5.51	2.62	1.44	34.7	27.6	16.4	22.6	18.4	9.1		
Private Conduits	37.18	24.00	12.97	5.22	2.19	0.53	37.8	26.8	26.1	21.4	15.4	3.3		
<b>Subtotal</b>	<b>97.32</b>	<b>74.36</b>	<b>40.03</b>	<b>24.43</b>	<b>14.24</b>	<b>15.85</b>	<b>98.8</b>	<b>83.1</b>	<b>80.5</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>		
RTC	1.17	15.12	9.69	0.00	0.00	0.00	1.2	16.9	19.5	0.0	0.0	0.0		
<b>Total</b>	<b>98.49</b>	<b>89.47</b>	<b>49.72</b>	<b>24.43</b>	<b>14.24</b>	<b>15.85</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>		

Source: Inside Mortgage Finance Publications, Inc.



but as its mission neared completion, RTC's issuance became negligible. RTC's contribution came as non-GSE issuance was already growing, so one may question its impact. Nevertheless, some participants in the market believe RTC attracted many first-time investors to non-GSE securities, and they attach significance to its participation.<sup>16</sup>

The rise in acceptance of CMOs also contributed to growth in private-issue mortgage securities. The popularity of CMOs and other multiclass securities contributed to the capabilities of suppliers and the appetite of investors. Private sector institutions have been active in multiclass issuance, and this role has raised their level of expertise and their customer base for mortgage securities. Multiclass securities have also been effective in appealing to investor classes who had little interest in whole loans or passthroughs. Thus, they helped enlarge the secondary market for mortgages of all types. Refinement of this technology has been particularly important in the non-GSE market, as virtually all of the recently issued securities backed by fixed-rate nonconforming loans have been multiclass securities.

Although application of CMO technology to jumbos may have helped boost securitization activity, CMOs were burdened by restrictions on issuing collateralized debt.<sup>17</sup> REMICs, however, did not suffer from this difficulty. Moreover, REMICs could be structured to have senior and subordinated classes, with the latter bearing a disproportionate amount of the risk. By permitting risk to be localized on the subordinated classes, REMICs overcame an important drawback of non-GSE securities and thus facilitated the securitization of jumbo loans.<sup>18</sup>

Changes in the geographical distribution of jumbo loans may also have advanced jumbo securitization activity. Because the conforming loan limit is identical in (almost) all areas of the country,<sup>19</sup> while costs of homes are not, there are substantial regional differences in the fraction of loans that are under the limit (see, for example, ICF, Incorporated, 1990). For this reason it has at times been difficult for jumbo loan securitizers to obtain adequate geographic dispersion (Lea 1986/87, p. 28).

Evidence from MIRS suggests that there has been increasing dispersion of jumbo purchase-money originations over the past several years. In 1989, for example, 66% of all jumbo purchase-money originations were in California, and the top 10 states for jumbo purchase-money originations accounted for 90% of all jumbos. In 1993 California accounted for only 35% of all jumbo orig-

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<sup>16</sup> See Bhattacharya et al. (1994).

<sup>17</sup> Early jumbo-backed securities were instead issued mainly as grantor trusts. For tax and accounting purposes, these were generally not structured as self-insured through senior and subordinated classes. For this reason these trusts generally needed credit enhancements like letters of credit or pool insurance, which in turn invoked loan size or geographical dispersion limitations. See Korell (1987).

<sup>18</sup> This discussion assumes that multiclass securities perform functions that individual investors could not just as easily perform on their own. Rothberg, Nothaft, and Gabriel (1989) find that the introduction of the CMO had no effect on yield spreads between Ginnie Maes and Treasuries or between Freddie Mac MBSs and Treasuries.

<sup>19</sup> Alaska and Hawaii have higher conforming loan limits.

TABLE 4

## Credit Enhancement of Non-RTC, Non-GSE Mortgage Securities

	\$ Billions										Percent				
	1993	1992	1991	1990	1989	1988	1993	1992	1991	1990	1989	1988	1989	1990	1988
Internal															
Subordination	81.57	43.38	25.13	12.09	8.89	12.47	83.8	58.6	62.8	49.5	62.4	78.7	62.4	49.5	78.7
Super-Senior	1.83	2.61	5.26	0.00	0.00	0.00	1.9	3.1	13.1	0.0	0.0	0.0	0.0	0.0	0.0
External															
Pool Insurance	10.56	25.14	5.11	5.68	1.44	0.63	10.8	33.9	12.8	23.2	10.1	4.0	10.1	23.2	4.0
Letter of Credit	0.00	0.97	2.45	3.76	1.89	0.00	0.0	1.3	6.1	15.4	13.3	0.0	13.3	15.4	0.0
Surety Bonds	1.62	1.40	0.12	1.10	0.31	0.64	1.7	1.9	0.3	4.5	2.2	4.0	2.2	4.5	4.0
Corporate Guaranty	0.00	0.00	0.15	0.64	1.71	2.11	0.0	0.0	0.4	2.6	12.0	13.3	12.0	2.6	13.3
Multiple Support	0.79	0.86	1.81	1.17	0.00	0.00	0.8	1.2	4.5	4.8	0.0	0.0	0.0	4.8	0.0
Other	0.97	-	-	-	-	-	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>97.32</b>	<b>74.36</b>	<b>40.03</b>	<b>24.43</b>	<b>14.24</b>	<b>15.85</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Inside Mortgage Finance Publications, Inc.

inations, and the share of the top 10 states had fallen to 76%. Unfortunately, although increasing geographic dispersion is suggestive, we do not have more direct evidence that this phenomenon has facilitated securitization.

As these developments in the secondary market were proceeding, the aggregate level of conventional single-family originations began to surge in 1991 as homeowners refinanced in response to the dramatic fall in mortgage interest rates. The annual average rate of conventional originations in 1991–93 was 90% higher than the average rate for the 2 previous years. This large increase in aggregate originations included a substantial expansion in the supply of new jumbos available for securitization.

## *(2) Credit Enhancement of Private Mortgage-Backed Securities*

Addressing credit risk is a key issue in producing non-GSE securities. To attract a wide investor base, issuers must obtain a double-A or triple-A rating from one of the private agencies that rates mortgage securities. This requires that the underlying loans be well underwritten and that the security structure include credit enhancement that protects investors from default. Most issuers have used one of six methods of credit enhancement. Two of these, senior/subordinate structures and reserve funds, are internally financed. Reserve funds, which are essentially pools of cash set aside to cover defaults, are the most expensive. Senior/subordinate structures are less expensive and more widely used. The other four techniques—pool insurance, letters of credit, surety bonds, and corporate guaranties—are purchased externally. Corporate guaranties are obtained from the issuer's parent company. The other external enhancements are obtained from highly rated financial institutions independent of the issuer.

Reliance on any one of these methods has varied over time. As Table 4 shows, internal financing has been the dominant mode since 1988, and private issuers using internally financed credit enhancement have used senior/subordinate structures almost exclusively. Reserve funds have been used by RTC. Since 1988 senior/subordinate structures have accounted for more than 50% of all non-RTC issuance in every year except 1990, when these structures accounted for 49%. In 1993 the usage of senior/subordinate structures jumped from the 60% range, where it had been since 1989, to more than 80%.

Among externally purchased modes of credit enhancement, pool insurance has been the dominant choice in the 1990s. Purchased from an insurance company in an amount required to obtain the desired rating, pool insurance protects investors from losses due to default.<sup>20</sup> The share of non-RTC, non-GSE securities issued using pool insurance has fluctuated between 10% and 25% through most of the period since 1989. In 1992 the share jumped to 34%, but in 1993 it dropped back to 11%. In the late 1980s, significant percentages of non-GSE securities used a corporate guaranty, but this form of credit enhancement has all but disappeared since 1991.

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<sup>20</sup> Additional insurance must be purchased to cover losses from fraud, bankruptcy, and special hazards such as earthquakes.

The senior/subordinate structure has been dominant because it is economical and has proven to be robust over time. For well-underwritten fixed-rate loans, only 6% of the total securities pool is generally allocated to subordinated classes. These junior pieces were formerly sold through private placements, but in recent years these classes increasingly have been rated and sold to institutional investors.<sup>21</sup> Furthermore, externally financed credit enhancements leave the security vulnerable to deterioration in the financial condition of the guarantor. Prior to 1992 nearly all the instances of lowered ratings on non-GSE MBSs were related to this problem. Only in 1992 and 1993 did performance of collateral generate ratings reductions to a significant degree. In most of these cases, the underlying loans were not of prime quality, and during the recessions of New England and California they underperformed the initial expectations of rating agencies.<sup>22</sup>

### **C. The Conforming Loan Differential**

To see how mortgage market developments in the 1990s have affected interest rates of conforming relative to nonconforming loans, it is useful to review briefly the history of the mortgage market. A starting point is a market without mortgage securities, where interest rates on jumbo and conforming loans may or may not be equal.

#### ***(1) The Mortgage Market Without Mortgage-Backed Securities***

Without mortgage securities interest rates on jumbo loans might be higher than conforming loan rates to reflect greater variance in the prices of expensive homes or the thinner market in which such homes trade. On the other hand, owners of such homes might be less susceptible to unemployment and have larger reserves to fall back on in the event of a drop in income. Either way, relative underwriting standards in the jumbo and conforming sectors can be adjusted to compensate for the difference. Thus, investors concerned about the greater volatility in the market for large, expensive homes might offset this risk by insisting that buyers of such homes invest proportionately greater equity in the transaction than is required for borrowers using conforming loans. Consequently, a conforming loan differential may or may not exist without securitization.<sup>23</sup> H-S found a differential of 5 basis points in 1978, which they interpret as a measure of the differential in the absence of securitization.

#### ***(2) The Market With Fannie Mae and Freddie Mac Mortgage-Backed Securities***

When GSE securitization of conforming loans was introduced into this market, a conforming loan differential of 30 basis points (using H-S) was observed, implying that GSE securitization lowered interest rates on conforming loans 25 basis points relative to interest rates on jumbo loans.

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<sup>21</sup> Bhattacharya et al. (1994). Life insurance companies were formerly the largest investor base for the subordinated classes, but more restrictive capital guidelines have reduced their participation. Among groups increasing their participation in this market are money managers and aggressive mutual funds.

<sup>22</sup> Tierney, Quint, and Ames (1994).

<sup>23</sup> This discussion sets aside the effect of fixed administrative costs on effective interest rates as loan size increases.



As is discussed by Cotterman (1994), the H-S result is widely interpreted as evidence that spreads between conforming mortgage rates and Treasuries declined by 25 basis points in the 1980s. Although the findings are consistent with this interpretation, the conclusion does not necessarily follow.

A particular problem with this interpretation is that GSE activity may have caused both jumbo and conforming rates to move relative to Treasuries. Securitization of conforming loans may have altered the relative supplies of funds to the two market sectors, and the direction of this effect on the differential with respect to Treasuries is uncertain. For example, we suspect that thrifts, with specialized expertise in management of whole loan portfolios, began pricing jumbo loans more aggressively after yields on conforming loans declined. This second-order effect would have led to lower interest rates on jumbos and caused the conforming loan differential to understate the effect of GSE securitization on conforming loan interest rates. Conversely, GSE securities may have drawn funds away from jumbo investments and caused jumbo interest rates to rise. In this case the differential would overstate the effect of GSE securitization.

### *(3) Risk-Based Capital Standards*

GSE securities became firmly established in fixed-income security markets in time to occupy a prominent position in a new set of risk-based capital requirements for commercial banks and thrifts. The new standards, which were published in early 1989 and phased in between 1990 and 1992, were introduced when many banks and thrifts were perceived to be short of capital. The new system required that depositories hold 4% capital against whole mortgage loans compared with 8% against benchmark private sector liabilities such as corporate bonds, commercial loans, and consumer loans. The required capital backing for GSE securities was only 1.6%.<sup>24</sup>

This weighting system provided encouragement for commercial banks to increase their investments in mortgages and mortgage securities, assets that were in abundant supply in 1989 and 1990 as insolvent thrifts were closed and their assets sold. The low risk weight applied to GSE securities lowered the effective cost of holding these assets, and banks shifted their portfolios toward mortgage securities. In 1989 banks' holdings of mortgage securities accounted for 5.4% of outstanding mortgage debt. By 1992 banks' holdings of securities accounted for 10.4% of outstanding mortgage debt. Banks' holdings of whole loans in portfolio accounted for 14% and 15%, respectively, of outstanding mortgage debt in those years.<sup>25</sup>

Although the effect of the new capital standards on relative interest rates in the jumbo and conforming markets is not measurable, the changes in banks' balance sheets are consistent with the proposition that risk-based capital standards for banks increased the ultimate demand for conforming

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<sup>24</sup> This discussion refers to the credit risk component of the new capital standards. The standards also included components for interest rate risk and off-balance-sheet activities. See Keeton (1989) and Scavotto (1994) for more complete discussions of credit risk weighting and the other components of the capital standards.

<sup>25</sup> Weicher (1994).

loans relative to jumbos. If so, the capital standards could have generated upward pressure on the conforming loan differential.

#### *(4) The Market With Private as Well as GSE Mortgage-Backed Securities*

Private production of MBSs became significant shortly before risk-based capital standards became a factor. The development of a substantial market in MBSs using jumbo loans as collateral into a market previously dominated by GSE securities would be expected to reduce the spread in the primary market between jumbo and conforming loans. As the extent to which jumbo loans could be used as collateral for securities rose, the investor base for these loans would become broader and ultimate demand for them would increase.

It is unlikely, however, that private securitization of jumbos would reduce the conforming loan differential to the level that would be observed in a world without GSE securitization. The credit enhancement necessary to bring private securities to market is more expensive than the GSE guarantee, and investors do not see private and GSE securities as perfect substitutes. This is particularly true for commercial banks, for whom the risk-based capital weight on private securities is the same as the weight on whole loans.<sup>26</sup>

Any independent effect of the expansion of the market for privately issued securities will be difficult to isolate. The rise in securitization of jumbo loans occurred in 1988 through 1993, when risk-based capital standards were being proposed, revised, and implemented. Furthermore, the end of our period of observation may be affected by anticipation/implementation of Financial Accounting Standard 115, which requires that depositories and insurance companies mark to market debt securities. The standard does not require that whole loans be marked to market, and in response many investors have reportedly shifted their portfolios toward more jumbo mortgages and fewer securities, further increasing demand for jumbos relative to conforming loans.<sup>27</sup>

#### *(5) The Conforming Loan Differential in the Transition*

These points aside, a decline in the jumbo-conforming spread toward the end of the 1989–93 period would not be surprising. Any such decline would be interpreted as at least partly a result of the expansion of private sector securitization. Downward pressure from this source probably would not have been realized immediately; passage of time would be necessary, reflecting the market's gradual acceptance of privately issued securities and the corresponding increase of these securities' acceptance and liquidity.

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<sup>26</sup> Capital standards for savings and loans currently call for a 20% risk weight on senior classes with double-A and triple-A ratings. Bank regulators, in an advance notice of proposed rulemaking, have proposed to reduce the risk weight on senior securities with internal credit enhancement to 20%.

<sup>27</sup> Bhattacharya et al. (1994) and Tierney, Quint, and Ames (1994).

In the early portion of the transition, we would expect the market to price private-label securities somewhat below what these securities would command when the market became mature. Factors contributing to this phenomenon include low initial liquidity and general lack of experience with the securities. Liquidity is enhanced by a large volume of outstanding issues and a broad set of investors participating in the market. By definition the first wave of securities is sold into a market that is less liquid than it will become after the market has absorbed high rates of issuance in subsequent periods. Investors' confidence in the credit enhancement and projections of prepayment behavior will rise over time after they have had opportunities to see how the collateral behaves in different environments.

As investor demand for jumbo securities strengthened, the rate on jumbo loans usable as collateral might have fallen toward the rate on conforming loans. This effect might have been reinforced by reductions in costs as private issuers gained experience and perhaps took advantage of scale economies as rates of securitization increased.

### *(6) Fluctuations in the Conforming Loan Differential*

Aside from transitional effects, other factors may have induced fluctuations in the conforming loan differential. For example, increases in unemployment and declines in home prices may lead to widening in the jumbo-conforming differential. Since the credit enhancement for private securities is less bulletproof than the GSE guarantee that covers GSE securities, economic difficulties that raise default risk in the underlying mortgages may affect the relative prices of private versus GSE securities. This in turn may temporarily lower the price private issuers are willing to pay for jumbo loans, thereby putting upward pressure on the jumbo-conforming differential.

Changes in financial market conditions may also produce fluctuations in the jumbo-conforming loan differential as they affect relative prepayment speeds for jumbos versus conforming loans. Jumbo borrowers are more sensitive to changes in the incentive to refinance.<sup>28</sup> This can affect the relative value of passthrough securities collateralized by the two types of loans. An example involving CMOs can illustrate this point.

In the early 1990s, the environment was exceptionally favorable for production of CMOs. From the issuers' perspective, profitability was higher if more of the principal balance could be allocated to short-term tranches. This was a consequence of the steeply sloped yield curve. Because jumbo loans were credibly projected to have higher prepayment rates, more of their principal could be allocated to the short tranches. This made jumbos more attractive as collateral than usual, and the resulting increase in the demand for jumbos may have narrowed the jumbo-conforming differential.

Similar effects can result from purely financial disturbances. Turbulence in financial markets can reveal that the liquidity of relatively novel or exotic securities, such as some private-label mortgage issues, is somewhat fragile, thereby strengthening the relative value of the more familiar,

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<sup>28</sup> Tierney, Quint, and Ames (1994).



straightforward securities such as passthroughs issued by the GSEs. When the liquidity of private-label securities is disrupted, the outlets for new production may become harder to find. Thus, rates on nonconforming loans may rise relative to rates on conforming loans during periods of financial turbulence.

The net effect of all these considerations is that agency status is probably an important contributor to any spread that we might observe in the primary market between loans over and under the conforming limit. There is some reason to expect that the spread will be lower after 1991 or 1992 than before, but assigning weights to the causes of any reduction is problematic. And finally, whatever its value, the spread itself should not be interpreted as a precise measure of the effect of agency status per se.

### III. ESTIMATING THE CONFORMING LOAN DIFFERENTIAL

#### A. Review of the Literature: The General Accounting Office, Hendershott-Shilling, and ICF Studies

##### *(1) The General Accounting Office Study*

Prior to the work by H-S and ICF, a study by the U.S. General Accounting Office (GAO) (reported in Peach 1984) examined the question of possible interest rate differentials between conforming and nonconforming loans. Using data from the Federal Home Loan Bank Board Survey (now MIRS) from 1983, GAO calculated unweighted averages of nominal (contract) interest rates, fees and charges (as a percentage of loan amount), and effective interest rates.<sup>29</sup> Defining conforming loans as those having principal amounts no larger than the conforming loan limit for 1983, GAO found that nonconforming loans enjoyed an advantage in all three measures—nominal rates, percentage fees, and effective rates—for both adjustable- and fixed-rate mortgages. Finding that average maturities and average loan-to-value (LTV) ratios were higher for nonconforming than for conforming loans, GAO stated that interest rate and fee differentials could not be attributed to these factors.

Because the GAO study failed to control for loan size effects that would have been present even in the absence of the conforming loan limit, it is difficult to interpret as definitive the GAO finding of lower interest rates for jumbo loans. Subsequent studies that have attempted to control for loan size effects have suggested that conforming loans would not have enjoyed an interest rate advantage in 1983 by virtue of their conforming status; whether rates actually favored jumbo loans at that time seems open to question.

##### *(2) Hendershott-Shilling*

One such study is that of Hendershott and Shilling (1989), who first established the existence of an interest rate differential that favored conforming over nonconforming (jumbo) loans. Basing

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<sup>29</sup> The effective rate adjusts the nominal rate for points amortized over a 10-year horizon.



their work on loan-level data generated by MIRS, which was still under the auspices of the Federal Home Loan Bank Board (FHLBB), H-S restricted their analysis to permanent, fully amortizing, fixed-rate, first mortgages on single-family, nonfarm, residential properties. To reduce heterogeneity, especially that arising from cross-state differences in ease of foreclosure, the H-S sample was further restricted to long-term (at least 25-year) loans originated by S&Ls in California in 3 months (May, June, and July) of each year analyzed.<sup>30</sup>

The basic model adopted by H-S posited the mortgage interest rate as a function of the log of the loan amount, with a possible discontinuity at the conforming limit. Using linear regression, H-S controlled for other sources of variation by including covariates for individual months, (four) LTV ranges, geographic subregions within California, and whether the home was newly constructed or previously occupied. An indicator for loans below the conforming loan limit was designed to pick up the effect at issue.

Although their preferred specification utilized the contract rate as the dependent variable, reported results were qualitatively similar when using the effective loan rate, which builds in discount points amortized over a 10-year horizon. In both kinds of runs in 1986 data, H-S found that mortgage rates were negatively related to loan size. However, interest rates were about 30 basis points higher for loans well above the conforming loan limit than for loans below the limit, and this differential was estimated with reasonable precision. In contrast, in regressions using 1978 data, rates on conforming loans were found to be little different from those on nonconforming loans. In the 1986 data, H-S further found that rates on jumbos within 15% of the conforming loan limit enjoyed a smaller rate disadvantage than larger jumbos, presumably reflecting the expectation that these loans would be under the increased conforming loan limit applicable to the following year. Referring to, but not presenting, analysis with 1985 data, they suggested that these securitization effects were not present until 1986.

### *(3) The ICF Study*

A subsequent study by ICF, Incorporated (1990), offered additional evidence on the conforming loan differential. Again utilizing MIRS data, the authors first attempted to duplicate the H-S findings from 1986 and obtained similar but not identical results; they attributed their inability to obtain identical estimates to somewhat different sample exclusions. The ICF study also applied nearly identical regression models to May–July 1987 data and to 6-month data for four samples: three individual states (California, Illinois, and New Jersey) and an aggregate of seven states (California, Illinois, Massachusetts, New Jersey, Ohio, Texas, and Virginia). Although the findings in these samples were qualitatively similar to the H-S results, the estimates were mixed. Moreover, the estimated rate differential between small jumbos and conforming loans, though frequently estimated imprecisely, often exceeded the rate differential between large jumbos and conforming loans. ICF found only an insignificant rate differential in California data for 1980, a finding that reinforces the H-S conclusion of an absence of agency effects until later in the 1980s.

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<sup>30</sup> Additional restrictions on the samples utilized by H-S are discussed below.

## **B. Description of the Mortgage Interest Rate Survey Data**

Like the studies of H-S and ICF, we analyzed data from MIRS. Our data set contained characteristics of loans originated from January 1989 through December 1993. We also obtained some earlier data, gathered between 1986 and 1988, but we did not receive these surveys in time to include them fully in our study.

### ***(1) Background***

MIRS is a comprehensive source of microdata on loans actually closed. It is restricted to loans secured by single-family, nonfarm, residential properties. The loans are permanent, fully amortizing first mortgages. They include both fixed-rate mortgages (FRMs) and ARMs from a variety of originators—savings and loans, mutual savings banks, commercial banks, and mortgage companies. Refinances, seconds, and interim loans are excluded; beginning with the November 1991 survey, construction-purchase loans are excluded as well.

Information captured in the survey includes the loan amount, the contract interest rate, and the upfront fees paid by the borrower. Having data on actual transactions is necessary for estimating the relationship between loan size and interest rates. This relationship may not be evident in data on quoted interest rates, because any flexibility the loan officer may have in negotiating the terms will not be incorporated.

MIRS has been conducted since the 1960s. Prior to October 1989, MIRS was administered by FHLBB. As regulator of savings and loans, FHLBB focused primarily on the thrift industry. Consequently, S&Ls have always been heavily represented in the survey, while participation by commercial banks and mortgage companies has been relatively low. In recognition of this, and to adjust for differences in reporting frequencies across regions and lender sizes, sampling weights have been assigned to individual loans.

After the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA), the Federal Home Loan Bank System was divided into separate supervisory and banking organizations, and the Federal Home Loan Banks ceased to participate in the regulation and supervision of savings and loans. In October 1989 administration of MIRS was transferred to the Federal Housing Finance Board (FHFB), the new body established to oversee the Federal Home Loan Banks. In November 1991 FHFB staff revised the survey procedure. The sampling period was changed from the first 5 business days of the month to the last 5 to obtain a larger volume of loans. In addition, the option of reporting data electronically was introduced, and the procedure used to assign weights was changed.

### ***(2) Weighting and Lender Classification***

The weighting scheme, and changes thereto, are important for a variety of reasons. First, within-year weighting should be a reliable guide to (inverse) sampling rates because the calculation of within-year totals, shares, and other statistics must use these weights to estimate population

values. Second, our more detailed regression analysis of within-year data will also rely on the validity of sample weights. Third, one possible analytical approach is to apply weighted regressions to raw survey data that are pooled across years. Such an approach requires that the weighting scheme be consistent across the different years of the data. As it turns out, the weighting framework in MIRS appears to differ enough over time that we are uncomfortable in pooling data directly across years, especially across the 1991–92 boundary. Even when not pooling across years, care must be used in comparing results from weighted regressions before and after the weighting change.

Some simple calculations illustrate changes in the weighting system. First, the minimum weight for an individual loan observation prior to November 1991 is 1.0, but the minimum falls to about 0.24 thereafter. Second, the maximum weight rises from about 68 in the 1991 data to about 673 in later years; there is a corresponding shift upwards in the median weight from about 1.1 prior to 1992 to more than 9.0 afterwards.

Another perspective on the weighting scheme and difference in sample composition in the two regimes is provided by Table 5. Weights on S&L mortgage loans are lowest in both the old and new regimes. Weights on commercial bank loans were below those of mortgage companies in the old regime, but they are much larger than mortgage company weights in the new system. Weights on mortgage company loans were constant in the old regime, but they vary in the new one. The drop in California loans reported by commercial banks must also be noted. This may reflect an actual decline in commercial banks responding to the survey, or it could reflect a reclassification of some lenders.

Table 5 also illustrates how the change in data collection procedures affected the samples for California and other large states. In California there was little change in the volume of fixed-rate loans reported in MIRS. The S&L total in 1993 was higher than it had been between 1989 and 1991, but it was lower than it had been in 1989. In the 11 states<sup>31</sup>, however, the loan volumes increased dramatically after the survey procedure changed. Loans reported by S&Ls went up by more than 50%, and loans reported by mortgage banks went up by a multiple of 10.

Comparisons with published figures reveal further reasons to suspect that changes in classification have occurred. The (weighted) share of originations going to commercial banks is 20% in the 1993 MIRS data, as compared with 29% in *Secondary Mortgage Markets* (Freddie Mac 1994). The difference is much more dramatic for 1989, however: 10% in MIRS as compared with 30% in the published figures. Moreover, within individual states in the MIRS data, we observe year-to-year changes in shares by lender type that are too large to be believable.

For example, in going from 1991 to 1992, the (weighted) share of fixed-rate loans originated by commercial banks rose from 3% to 53% in Illinois, and there was a corresponding decline in the S&L share from 67% to 10%. During this same 2-year interval, California showed a decline in the mortgage company share of fixed-rate originations from 73% to 50% and an increase in the commer-

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<sup>31</sup> The 11 states are Connecticut, Florida, Illinois, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Texas, and Virginia. These states and California had the largest numbers of fixed-rate loans in the 1993 MIRS.

TABLE 5

**Sample Sizes and Weights  
Fixed-Rate Mortgages, May–July**

Year	California			Eleven-State Aggregate		
	Loans	Mean Weight	Standard Deviation	Loans	Mean Weight	Standard Deviation
<b>A. Savings and Loans</b>						
1989	901	1.041	0.094	1,750	1.499	2.354
1990	636	1.067	0.173	2,157	1.586	2.359
1991	679	1.070	0.170	2,064	1.524	1.926
1992	1,066	5.214	1.671	3,184	4.528	4.022
1993	807	7.325	3.090	3,163	6.504	4.997
<b>B. Mortgage Companies</b>						
1989	354	12.280	0.000	287	10.280	0.000
1990	417	10.280	0.000	538	10.280	0.000
1991	410	10.280	0.000	449	10.280	0.000
1992	450	23.276	1.125	4,614	17.360	8.911
1993	480	16.501	4.200	6,155	14.037	5.986
<b>C. Commercial Banks</b>						
1989	86	1.305	0.753	222	1.713	1.885
1990	79	3.033	3.614	264	4.374	6.070
1991	88	4.516	4.669	218	3.823	3.121
1992	19	269.937	104.409	384	41.220	71.475
1993	32	295.635	79.965	155	84.325	56.987

Note: Loans with terms at least 25 years, LTV between 70% and 100%, and fees less than 15% of loan amount and less than \$30,000.

Source: MIRS

cial bank share from 8% to 25%; the mortgage company share of fixed-rate originations in Maryland moved upwards from 48% to 93%.

Changes like these suggest that perhaps some lenders were classified differently after 1991. We know, for example, that mortgage banking subsidiaries of thrifts were classified as mortgage banks in the 1992 and 1993 data, but we are uncertain about classification conventions prior to 1992. Another possibility is that the roster of reporting institutions changed but the weights were not fully adjusted. The introduction of electronic filing presumably facilitated reporting by high-volume lenders, but the change in data format may have caused some lenders to withdraw from the survey. In any event the instability in the distribution of loans across lender types serves to alert us to



possible problems in relying upon lender classifications when making comparisons across the 1991–92 boundary.

### *(3) Data Quality*

Another issue to be confronted is inaccuracy in the data. With the turbulence in the S&L industry in the late 1980s, maintaining quality of the MIRS data was not a high priority of the FHLBB. FHFB has upgraded the survey, but MIRS does not address any of that agency’s primary objectives. Consequently, we find implausible observations, and our results in many cases are sensitive to their inclusion.

The errors that cause the most trouble in our analysis are inaccuracies in the classification of loans as FRMs or ARMs. In our samples of loans classified as FRMs, we find some with implausibly low interest rates and, on average, relatively large balances. We believe most of these observations are ARMs. They represent a serious inferential problem because they tend to be very influential when included in the regression sample—reducing or eliminating the interest rate differential otherwise observed between conforming and jumbo fixed-rate loans.

Our natural inclination is to avoid using the dependent variable in selecting which observations to include in our regression analysis. With these data, however, we believe that “trimming” the data provides a more accurate picture of the relationship between loan size and interest rates than samples that include the suspect data points. Furthermore, this appears to be the course followed by earlier researchers in this area. Our attempts to replicate H-S indicate that they deleted more observations than they specify in their paper to arrive at the 1986 sample size they report. The authors of the ICF report also trimmed the data; they state that they eliminated loans with interest rates below 7.5%.

Our method of trimming the data is described in Section C, below. Because we were working with 5 years of data gathered over a wide variety of economic and financial conditions, we found that it was impractical to use an ad hoc approach and eliminate observations that “looked bad.” Consequently, we developed a mechanical method of identifying observations to be eliminated because of implausible interest rates.

Our mechanical approach represents a compromise. It probably leaves some incorrectly coded observations in the sample and excludes many that are correctly coded. Nevertheless, we believe that it has much to recommend it. The thresholds have been set at levels that effectively exclude high percentages of the implausible observations without cutting into the core of the data. Furthermore, the approach has the advantage of facilitating replication and reducing the role of judgment on a month-by-month basis.

## C. Estimation Strategy

Our research design reflects two priorities. One objective was to preserve comparability with results of H-S and ICF. We were also mindful, however, of changes in the institutional environment and of opportunities to go beyond the narrow focus of the earlier research.

As with the two preceding studies, we confined our analysis to fully amortizing, fixed-rate loans. For samples prior to November 1991, we removed combination construction-purchase loans; such loans were already omitted from more recent data. To help ensure that loans were truly fixed-rate, first mortgages, we followed H-S and ICF in (a) eliminating loans with terms of less than 25 years,<sup>32</sup> (b) excluding loans with first-year rates below the coupon rate, and (c) restricting the sample to loans with a LTV of at least 70%. Following ICF, we also deleted cases with LTVs exceeding 100%. We deviated from the earlier studies in eliminating loans which reported a coupon rate below the first-year rate; we felt that the reported contract rates in these cases may have incorrectly included buydowns. Also, by requiring that discount points be less than 15% and less than \$30,000, we deleted a very few anomalous cases.

In addition, we deleted observations at the extremes of the interest rate or loan size distributions in an attempt to address the data quality issue discussed at the end of the previous section. The criteria were developed using the California data and applied to the 11-state aggregate. Our rule for trimming the FRM sample was to exclude any loans with effective rates below the 75th percentile of effective rates on ARM loans for the month.<sup>33</sup> We also trim on the high side by eliminating any loans with effective rates more than 2.05 percentage points above the Ginnie Mae yield for that month. In cases where the lower threshold would have been less than 2.0 percentage points below the upper threshold, the lower threshold was set to the Ginnie Mae rate plus 0.05 percentage points.<sup>34</sup> Using the log-linear specification makes the loan size and conforming loan coefficients extremely sensitive to observations with very small or large loan balances; consequently, we also excluded observations with loan amounts of \$35,000 or less and loan amounts of \$450,000 or more. Our somewhat broader focus is evident in several dimensions. We estimated equations using data from:

- The entire year as well as from the 3 months used by H-S and ICF.
- An aggregate of non-California states as well as from California.
- Loans originated by mortgage companies as well as S&Ls.

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<sup>32</sup> ICF further restricted the sample to 30-year mortgages.

<sup>33</sup> We also excluded all loans reported by a California S&L that consistently reported only FRMs from November 1992 through June 1993. Many of this institution's loans were below our lower bound, suggesting that the lender was reporting ARMs in addition to FRMs. We removed all this institution's loans because we doubted that our trimming procedure eliminated all the ARMs. The loans from the 11-state aggregate were not reviewed for this particular reporting problem, so no loans in the non-California samples were excluded on this basis.

<sup>34</sup> The data trimming procedure is further detailed in a methodological appendix which is available from the authors or from HUD's Office of Policy Development and Research.

We also incorporated sampling weights into the estimation process.

Although we followed earlier work in estimating differentials for loans that closed in May, June, or July of each year, we also formed samples of loans closed in each quarter over the 1989–93 interval and estimated quarterly differentials. The logic of focusing on the May–July portion of the year has been that these are thought to be peak home-buying months. MIRS data do not have exceptionally numerous observations in these months, however. Reviewing quarterly estimates provides a more complete picture of how the differential has behaved over time.

We estimate differentials over two geographic areas. Loans secured by homes in California, which has the largest jumbo market in the country, were used in one set of estimates. In our view California is the only state with enough jumbo loans to support analysis on a stand-alone basis. Thus, the other set of estimates is based on an aggregate of states. The 11 states chosen—Connecticut, Florida, Illinois, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Texas, and Virginia—had the most jumbo fixed-rate loans in the 1993 MIRS data. In the interpretation of the results, we focus on the California estimates, but the analogous estimates for the 11-state aggregate provide some additional perspective.

We departed from earlier studies in using weighted least squares to estimate differentials. Although in principle it is not strictly necessary to take account of exogenous weighting in a regression setting, in our view weighting is preferable because it renders the analysis less sensitive to misspecification. Rogers (1992) provides additional discussion of this point. As we observed earlier, the choice to use the weights has disadvantages, and we also ran the equations in unweighted form. Weighted and unweighted equations produce similar estimates in nearly all cases, and differentials from unweighted regressions are included in the Appendix, Tables 21 and 23 at the end of this paper.

The earlier studies confined their attention to loans closed by S&Ls, but we analyzed loans reported by mortgage companies as well. We report results using loans from each industry separately and an equation based on data pooled across the two industries.

Inclusion of mortgage companies has merit on three grounds. First, over the past decade mortgage companies have displaced S&Ls as the dominant mortgage lenders, particularly in the fixed-rate market. Hence, a more complete picture of the mortgage market demands that mortgage companies be considered as well. Second, the consistency of the classification of lender types is problematic, as we discussed earlier. Third, there is some concern that savings and loans sometimes allow nonmarket factors to influence loan terms, and thus conforming loan rate differentials estimated over a sample of S&Ls may be misleading.

An example of the third point is that observers sometimes claim that thrifts charge low rates when deposits are cheap and plentiful. Also, banks and thrifts may have loan programs that do not meet secondary market standards in all respects. These programs may help the depository fill a market niche, or they may enable it to tie mortgages with other product lines. Mortgage companies



are unlikely to engage in these practices because they do not have the option of putting their loans into a portfolio.<sup>35</sup>

We had hoped to include loans from commercial banks in our analysis, but the structure of the data makes this impractical. Commercial banks report too few California loans to allow us to estimate an equation for them separately. In the combined-lenders regression, the drastic shift in the weighting scheme and the decline in loans reported by banks (displayed in Table 5) distort weighted least squares estimates for 1992 and 1993.

The list of explanatory variables follows H-S and ICF:

- Indicators for individual months of May and June, which will pick up month-to-month changes in mortgage rates.
- The natural logarithm of loan size, which is expected to reflect economies in providing larger loans.
- Indicators for four loan-to-value ranges (80.0% to 84.9%; 85.0% to 89.9%; 90.0% or more; the fourth (excluded) category is less than 80.0%), which are expected to pick up measurable differences in default risk across loans.
- Indicators for geographic subregions (metropolitan statistical areas (MSAs) within California, states within the 11-state aggregate) that may capture differences in average default risk or market conditions across areas. In California, areas not in an MSA are aggregated and treated like a single area.
- An indicator for newly constructed homes, which allows for possible differences in default probabilities for new versus existing construction.
- An indicator for loans at or under the conforming loan limit.<sup>36</sup>

Some specifications used by H-S (and all specifications reported by ICF) differentiate between “small jumbos” (jumbos within 15% of the limit) and “large jumbos.” This approach was designed to capture the anticipation of year-to-year increases in the conforming limit. As Table 2 shows, large increases in the limit were routine in the middle 1980s. Consequently, a jumbo within 10% to 15% of the limit would likely become a conforming loan in the following year. Thus, lenders may have been competing aggressively for the small jumbos. We do not make this differentiation because the conforming loan limit leveled off after 1989. The only substantial increase occurred in 1992, and the limit actually fell in 1990.<sup>37</sup>

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<sup>35</sup> This is not strictly true for mortgage companies affiliated with depositories.

<sup>36</sup> Notice that we are able to differentiate between loans above and below the limit, but we have no way of knowing whether loans below the limit are conforming in other respects.

<sup>37</sup> The 1989 limit was 11% above the 1988 limit. To see whether lenders in 1989 were anticipating a large increase in 1990 like those that had occurred in earlier years, we tried introducing an indicator for jumbos up to 10% above the 1989 limit.

(continued...)



## D. Estimation Results

### (1) Conforming Loan Differentials

Tables 6 and 7 present estimates and t-ratios from weighted least squares regressions. Only the coefficient on the conforming loan indicator is presented; a more complete set of estimates for the May–July samples, including coefficients on other substantive variables, is presented in Appendix

**TABLE 6**  
**Estimated Conforming Loan Differential**  
**Contract Rates, May–July, Weighted Regressions**  
**(Absolute T-Statistics in Parentheses)**

Year	California			Eleven-State Aggregate		
	S&Ls	Mortgage Companies	S&Ls and Mortgage Companies	S&Ls	Mortgage Companies	S&Ls and Mortgage Companies
1989	-.453 (10.20)	-.505 (5.27)	-.496 (10.95)	-.306 (4.23)	-.594 (3.83)	-.593 (9.60)
1990	-.342 (6.80)	-.354 (6.39)	-.358 (9.91)	-.350 (6.98)	-.361 (3.73)	-.377 (8.42)
1991	-.475 (11.02)	-.461 (9.91)	-.472 (16.01)	-.330 (7.94)	-.491 (6.35)	-.425 (12.16)
1992	-.174 (3.10)	-.380 (7.11)	-.322 (9.06)	-.210 (5.74)	-.302 (13.34)	-.297 (16.20)
1993	-.192 (4.46)	-.279 (5.35)	-.253 (7.70)	-.278 (7.82)	-.234 (11.91)	-.241 (14.30)

(...continued)

We found no support for this “anticipations” hypothesis.

TABLE 7

**Estimated Conforming Loan Differential  
Contract Rates, Quarterly Data, Weighted Regressions for  
Savings and Loans and Mortgage Companies  
(Absolute T-Statistics in Parentheses)**

Year	California				Eleven-State Aggregate			
	QI	QII	QIII	QIV	QI	QII	QIII	QIV
1989	-.450 (8.01)	-.486 (9.01)	-.485 (16.37)	-.523 (19.15)	-.446 (6.82)	-.502 (7.32)	-.617 (10.80)	-.558 (13.37)
1990	-.530 (15.84)	-.362 (9.35)	-.377 (10.21)	-.326 (5.21)	-.489 (10.29)	-.302 (6.56)	-.450 (11.51)	-.299 (5.52)
1991	-.503 (10.83)	-.517 (16.39)	-.471 (15.61)	-.327 (8.31)	-.496 (9.46)	-.449 (11.16)	-.323 (9.47)	-.240 (6.03)
1992	-.493 (13.23)	-.396 (11.57)	-.230 (6.00)	-.377 (8.34)	-.396 (13.27)	-.286 (14.85)	-.354 (17.03)	-.323 (13.27)
1993	-.354 (8.34)	-.281 (9.17)	-.156 (4.81)	-.222 (6.24)	-.339 (12.92)	-.263 (14.91)	-.189 (11.31)	-.171 (9.15)

Tables 16–19.<sup>38</sup> The tables display results for loans closed in California and for loans closed in 1 of 11 other large states. Although results here utilize the coupon rate as the dependent variable, we ran a parallel set of analyses using the effective rate. The latter adjusts the coupon rate for discount points amortized over a 10-year horizon. Estimated effects of the conforming loan limit based on the effective rate were very similar to those using the coupon rate and are reported in Appendix Tables 20–23.

The first point to note is that interest rates on conforming loans are always lower than rates on jumbos. This is true for all years and for both savings and loans and mortgage companies.<sup>39</sup> In Table 6 the differential tends to be larger (the coefficient is more negative) for mortgage companies than for savings and loans. The differential in the 11-state aggregate is sometimes above and sometimes below the California differential.

<sup>38</sup> Additional tables in the methodological appendix (see footnote 34) present regression results separately for the S&L and Mortgage Companies subsamples.

<sup>39</sup> This is not always true when unrestricted samples are used. See Table 15 and discussion in the methodological appendix (see footnote 34).

A second point is that the differential has varied over time. It was higher in 1989–91 and somewhat lower in 1992–93. The drop was sharpest among California S&Ls, but it is present for both lender types and both areas. The quarterly estimates in Table 7 also show a downward trend, particularly after mid 1991.

Figures 2 and 3 facilitate a comparison of the results for California and the 11-state aggregate. Here the negative estimated differentials in Tables 6 and 7 are plotted as positive numbers. The differential followed similar paths in the two areas, although the correspondence is much closer for mortgage companies than for S&Ls. The perspective on the behavior of the differential over time is somewhat sensitive to the use of weighting, however. As Table 23 in the Appendix reveals, the downward trend in the quarterly differential is less evident when coefficients are estimated from unweighted data. Even in Table 23 the differential is lower in the final 2 years than in the previous 3 years, however, particularly in California.

Most of our estimates of the differential are greater (in absolute terms) than the comparable values estimated by H-S using 1986 data. H-S report a differential of  $-0.238$  for contract interest rates and  $-0.294$  for effective interest rates on California loans originated by S&Ls. (Our procedure for 1986 S&L conforming loan differentials yields estimates of  $-0.219$  and  $-0.276$ , respectively.) The 1986 values are, therefore, substantially lower than the estimates for 1989–91. They are somewhat higher than our estimates for California mortgages originated by S&Ls in 1992 and 1993, but they are lower than our estimates for most other subgroups in those years.

Charts in Figure 4 show how the May–July differentials estimated for 1989 and beyond compare with those estimated with data from earlier years. For each of the four lender types by area subgroups, the differential estimated from 1986 data is slightly above the differentials estimated from 1993 data. The estimates from the 1987 and 1988 data do not fit a single pattern. We do not attach much significance to the 1987 and 1988 estimates, however, because the data for these years have particularly high error rates and need more thorough cleaning than we were able to give them.

## *(2) Other Variables*

The patterns of coefficients of other explanatory variables in the equations were generally mixed. The May–July equations for the 5 years provide a useful perspective on the patterns. The coefficients for the full sample are presented in the Appendix, Tables 16 (for California) and 17 (for the 11 states). Means of the major variables for the May–July samples are shown in Tables 18 and 19. Here we provide a brief summary of the findings.

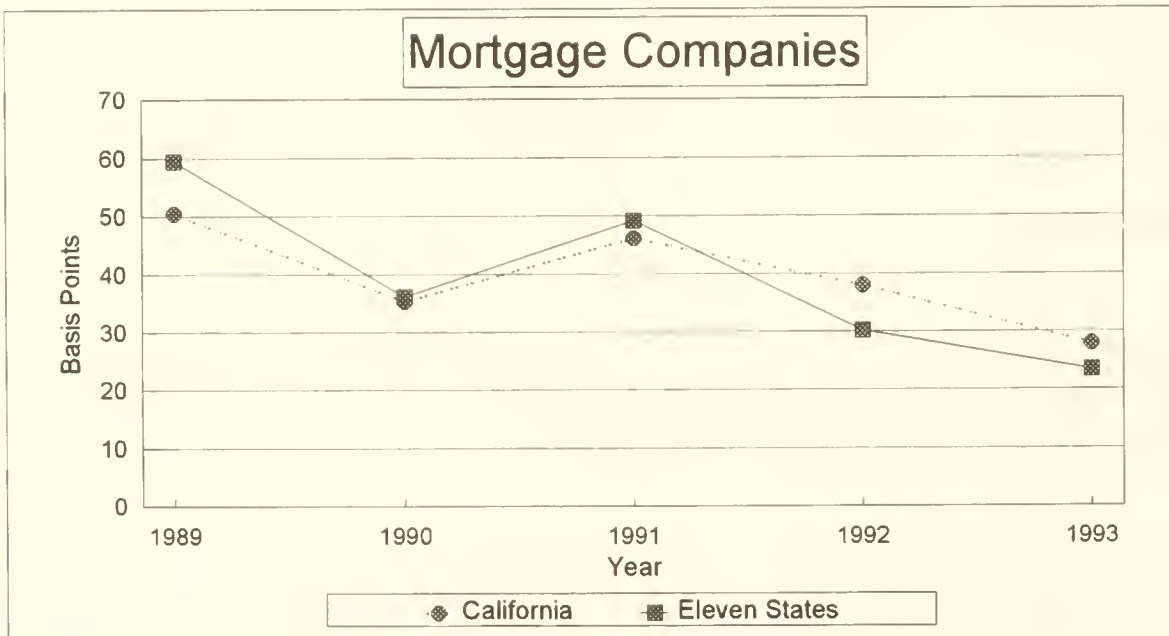
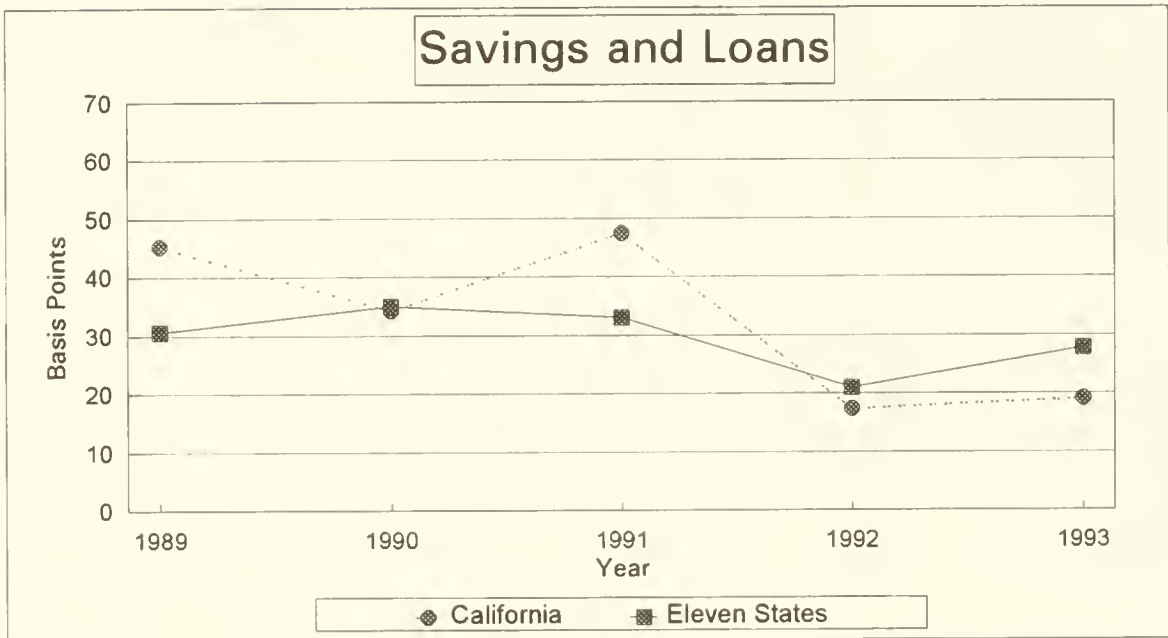
The log loan size coefficients are uniformly negative, but their magnitude fluctuates. The coefficients have a central tendency of about  $-0.1$ , but they range from about 0 to  $-0.25$ . To some extent the instability reflects noise in the data, and the exclusion of outliers often has a substantial effect on the loan size coefficients. Specification error may also play a role.<sup>40</sup>

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<sup>40</sup> We provide additional discussion of this point in the next section.

**FIGURE 2**

**Conforming Loan Differentials  
Contract Rates, May–July**





**FIGURE 3**

**Conforming Loan Differentials  
Contract Rates, Combined Lenders**

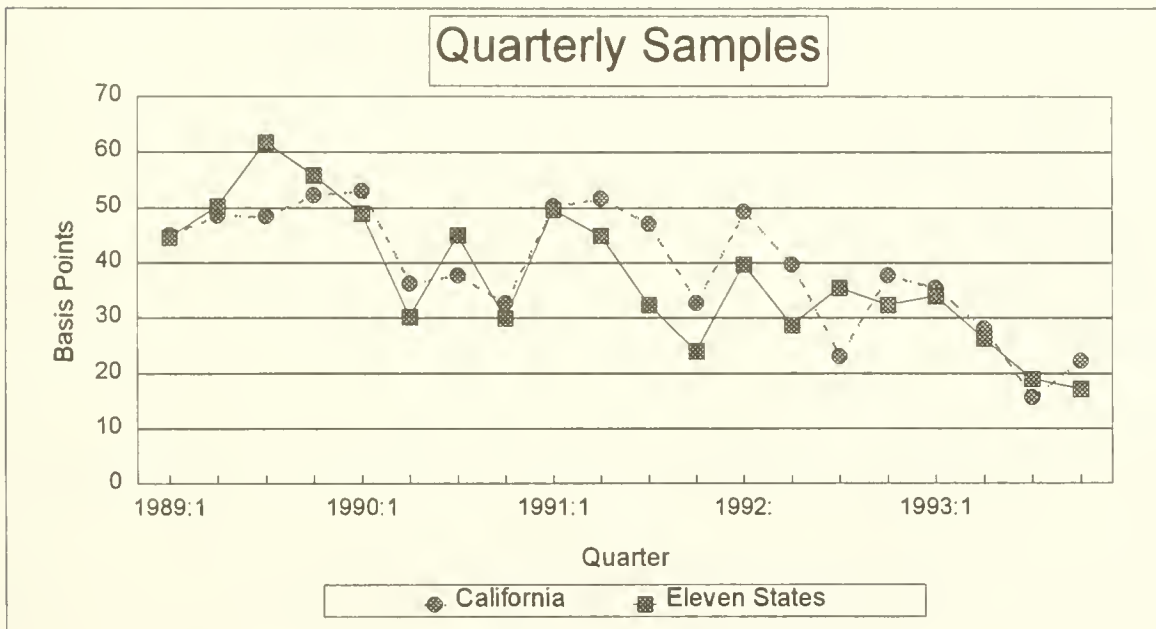
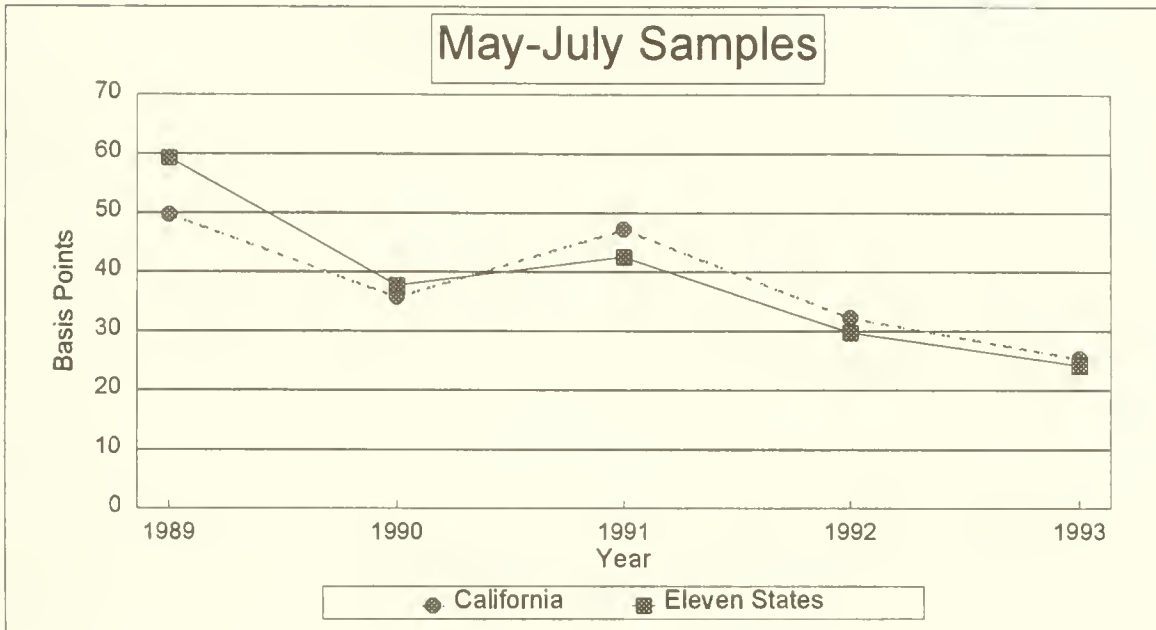
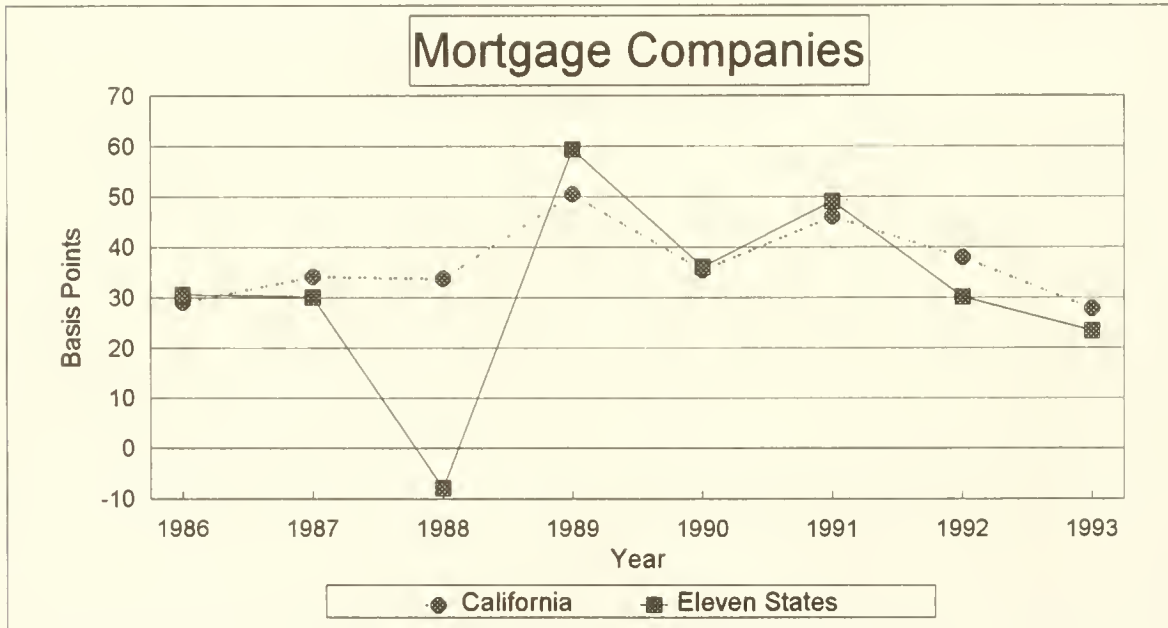
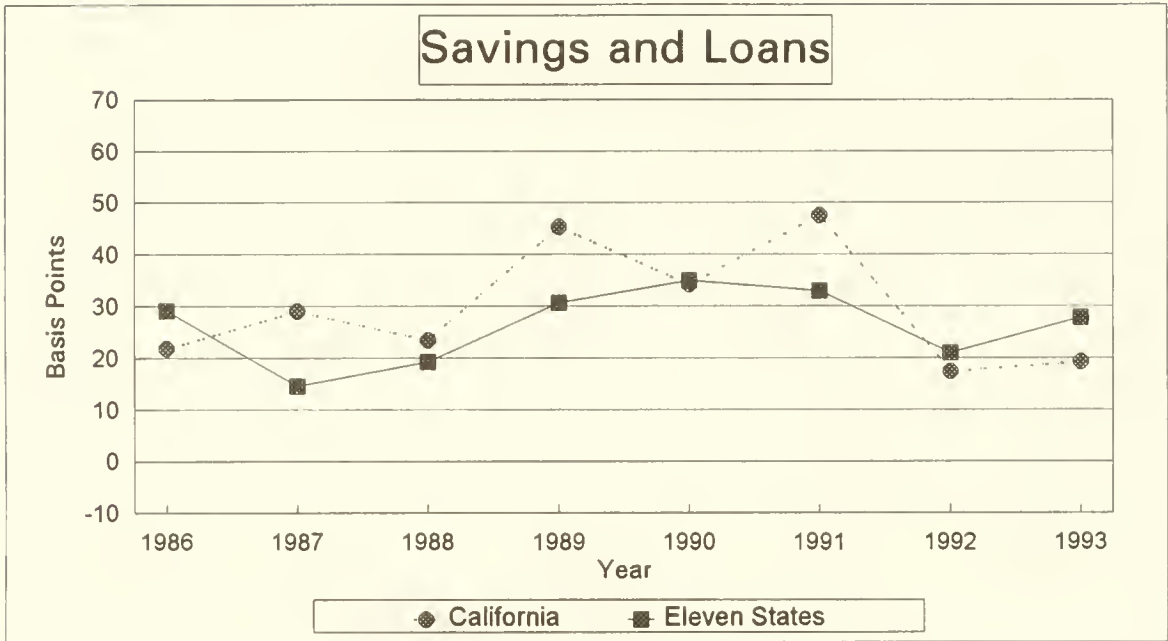


FIGURE 4

1986-1993 Differentials  
Contract Rates, May-July



The LTV indicators, which are included with the expectation that they will be indicators of risk, do not always display a pattern that bears out that expectation. For California loans the coefficients are positive and rise with LTV category before 1992, but they are often negative or insignificantly different from one another in 1992 and 1993. For loans in the 11 states, the pattern fits expectations somewhat better.

The expectation that LTV would be a consistent indicator of risk is probably unrealistic, however. In the absence of information on the borrower's credit history, LTV is not a monotonic indicator of risk. In underwriting conforming loans, borrowers with high LTV are expected to meet higher standards to qualify. Furthermore, nonconforming mortgage loans granted to borrowers with impaired credit histories generally carry high downpayment requirements and have relatively high interest rates to offset the risk represented by the perceived deficiency in reliability.

#### **IV. ADDITIONAL EVIDENCE ON THE EXISTENCE OF RATE DIFFERENTIALS—EFFECTS ON THE DISTRIBUTION OF LOAN AMOUNTS**

##### **A. Motivation**

The evidence in Tables 6 and 7 indicates that conforming loans have generally enjoyed a rate advantage over otherwise equivalent jumbo loans. Nonetheless, estimated effects do vary, and they are sensitive to how extreme observations are treated.

The regression evidence is also subject to the usual criticisms on statistical grounds, such as, failure to observe important factors (e.g., determinants of creditworthiness) or incorrectness of the chosen functional form.<sup>41</sup> In this case, however, functional form appears to be of special importance, and skepticism here may be well justified. In particular, the regression equation relies heavily on the relationship between loan size and coupon rate. Loan size enters continuously in logarithmic form to pick up economies in processing larger loans,<sup>42</sup> but its presence may also be justified to allow other loan size-related effects on contract rates. If, for example, larger loans are associated with more expensive homes having a thinner market or greater house price volatility, larger loans will be associated with higher rates to compensate for higher risk of default. Permitting such loan size-

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<sup>41</sup> These arguments, if valid, imply that the regressions cannot be viewed as correct reduced form equations. Coefficients may even change from year to year simply because of changes in the distribution of unobservables. Another statistical issue not treated here raises concerns as well—the possibility that loan size is endogenous. Consider the analogous case of estimating demand systems using data for individual consumers. In that context it is customary to treat market prices as predetermined but quantities purchased as endogenous. Applying this reasoning to the instant case, interest rates would be treated as predetermined and loan amounts as endogenous. There seems to be no completely compelling reason to reject this framework as more appropriate statistically. To resolve this issue, it would in principle be possible to use the Hausman (1978) procedures to test for endogeneity. Such tests would rely on the availability of instruments for loan amounts, and it is not clear that appropriate instruments are available here. In any case we have not conducted such tests.

<sup>42</sup> Loan size also enters indirectly via the numerator of the loan-to-value ratio.

related effects is crucial, for otherwise these impacts will contaminate the estimated conforming loan differential.

While it is thus reasonable to include some function of loan size as a control, the issue is whether the chosen functional form—linear in the log of loan size—is appropriate; this question is critical because the effect of the conforming loan limit is estimated as the shift in this function at the conforming loan limit. If the logarithmic function is not the right functional form to capture scale economies and other size-related effects, the indicator for the conforming loan limit may pick up an effect to compensate for the inadequacy of the assumed functional form. Stated differently, the regression is asked to choose a logarithmic function with a possible shift at the conforming loan limit to fit the data as well as possible. Even if some other (nonlogarithmic) function with no shift at the conforming loan limit is the true model, a logarithmic function with a shift at the conforming loan limit may be the closest approximation permitted by the regression.<sup>43</sup>

To overcome this justifiable skepticism and to verify the existence of conforming loan rate differentials, we offer in this section some additional evidence based on implications of rate differentials. In particular, if rates are lower for conforming loans than on otherwise identical nonconforming loans, we expect to find borrowers making some sacrifices to get conforming loans. More specifically, borrowers who, in the absence of rate differentials, would seek a loan for slightly more than the conforming loan limit may opt instead for a loan just at the limit. Whether a borrower would in fact do so would presumably depend on the rate differential to be gained by reducing the size of the loan and by the amount of sacrifice involved in borrowing less, which is presumably in turn related to the size of the loan that would otherwise be demanded.<sup>44</sup> This behavior should be revealed in the distribution of loan amounts: If conforming loans offer a rate advantage, we should find relatively substantial mass at the conforming loan limit and relatively few loans barely exceeding the conforming loan limit.

In this context we may remain agnostic about the precise way in which we arrive at an equilibrium characterized by lower rates for conforming loans and a concentration of loans at the conforming loan limit (assuming for the moment that this characterization is valid). For example, lenders may have initiated the differentiation between conforming and jumbo loans for salability reasons; that is, they may have preferred to make conforming loans since these were more easily resold on the secondary market. To induce borrowers who would otherwise exceed the limit to opt instead for a loan at the limit, the lender would either offer a lower rate, thus generating the conforming loan differential at issue here, or would offer some other favorable terms for choosing a conforming loan, thus generating an implicit but unmeasured differential between conforming and jumbo

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<sup>43</sup> In principle it would be possible to use methods developed in Box and Tidwell (1962) to test for the appropriate transformation of loan size. We have not attempted to do so.

<sup>44</sup> More technically, the presence of a rate differential will generate a kink in the multiperiod budget constraint. Some individuals who, in the absence of the kink, would otherwise choose a jumbo loan will instead choose a loan right at the kink. The number doing so will vary with the size of the rate differential and inversely with the amount that would be borrowed in the absence of the rate differential.



loans.<sup>45</sup> Faced with an explicit or implicit rate differential, some borrowers would opt for the maximum conforming loan, thus generating a concentration of mass at the limit.

## B. Results

To investigate the possibility of a large concentration of mass at the conforming loan limit, we examined the distribution of loan size for each year in both the California and the 11-state samples. At the risk of merging periods with different rate differentials, we chose to use full years of data to generate sufficient observations around the conforming loan limit. Figures 5 and 6 (pages 136–39) show the aggregate distributions. In each panel an arrow indicates the conforming loan limit.<sup>46</sup> In most cases, especially in California where there is more mass near the conforming loan limit, the stacking at the limit is apparent. To show this accumulation of mass at the limit more effectively and to demonstrate more clearly the unusually small mass immediately to the right of the limit, Figures 7 and 8 (pages 140–43) focus on a narrower band in the neighborhood of the conforming loan limit. In these figures the stacking at the limit and the absence of mass immediately above the limit are more apparent.<sup>47</sup>

Tables 8 and 9 (pages 144–45) also illustrate this phenomenon. These tables utilize the annual data underlying Figures 5 and 6. Each row of the table refers to a particular year and each column to a position in the distribution of loan amounts. The tables are centered around the conforming loan limit in effect for each year; column (5) shows the relative frequency of loan amounts right at the conforming loan limit in that year. Column (4) shows the relative frequency of loan amounts that are less than the conforming loan limit by up to \$250. Column (6) shows the corresponding frequency going the other way: the relative frequency of loan amounts that are more than the conforming loan limit by up to \$250. Continuing across the columns leftward from (4) moves downward from the conforming loan limit in ever-increasing loan amounts; in a symmetric fashion, moving across the columns rightward from (6) moves upward from the conforming loan limit in ever-increasing amounts. Comparing the relative frequency at the conforming loan limit (column (5)) with the frequencies in nearby columns makes clear the bunching of loan amounts at the limit, as well as the relative absence of mass immediately above the limit.

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<sup>45</sup> Except perhaps in some isolated markets, the availability of alternative sources of mortgage loans would presumably ensure that small jumbos would be available at competitive rates somewhere in the market, and these rates would reflect all costs to the lender, including salability. Even a locally monopolistic lender who might be reluctant to offer a full menu of loan amounts would have to recognize the opportunity cost of a foregone small jumbo loan. For this reason such a lender would be willing to offer a small jumbo at some price. Borrowers wishing to borrow more than the conforming loan amount at the conforming rate would presumably be willing to pay a bit more than the conforming rate to do so. The rational lender would be willing to offer a small jumbo at a premium that compensates the lender for reduced salability. If the latter rate exceeds the rate the borrower is willing to pay, the small jumbo would fail to materialize and the borrower would likely end up at the limit; if the latter rate is less than the rate the borrower would be willing to pay, the small jumbo transaction may occur. In either event there would be an implied or actual rate differential for the conforming loan. If this process were applied to numerous potential borrowers, there would likely be concomitant “stacking” of loans at the conforming loan limit.

<sup>46</sup> The note following the 1993 chart explains the loan size categories.

<sup>47</sup> See the notes to Figures 7 and 8 for more details on the categories.

The evidence here tends to confirm the existence, in general, of a rate differential favoring conforming loans over the period 1989 to 1993.<sup>48</sup> Although these distributions cannot, of course, rule out the absence of a differential at any point over the time interval at issue, the nature of these distributions suggests that differentials were probably not absent for any extended period of time.

To help verify the validity of this interpretation, we calculated similar loan size distributions for adjustable-rate loans for these same years and geographic areas. Since GSE securitization of (conforming) adjustable-rate loans is much less extensive than that of (conforming) fixed-rate loans, we anticipate a smaller interest rate differential among adjustable-rate loans and thus less concentration of mass at the conforming loan limit. As seen in Tables 10 and 11 (pages 146–47), this hypothesis appears to be borne out by the data: for ARMs there appears to be less stacking of mass at the conforming loan limit.

With some additional assumptions, the evidence on the concentration of fixed-rate loans at the conforming loan limit can be exploited further to tell us about the likely behavior of the rate differential over time. In particular, suppose that the rate differential between conforming and jumbo loans induces all borrowers who, in the absence of the rate differential, would borrow up to X dollars more than the limit, to borrow instead exactly the amount of the limit. The value of X would presumably vary directly with the size of the jumbo-conforming rate differential. Moreover, suppose that the tail of the loan size distribution in the absence of the conforming loan limit is exponential. Under these circumstances the presence of the conforming loan limit will generate mass at the limit, relative to mass above the limit, that varies directly with the size of the conforming loan differential but is independent of the position of the limit within the loan size distribution. Thus, under these conditions we may test for changes in the size of the rate differential by testing for the implied changes in the amount of mass at the limit relative to the amount above the limit.

Table 12 (page 148) uses the same data presented in Table 8 to show how the concentration of California fixed-rate loans at the limit, relative to the mass above the limit, changes through the years. Chi-square tests on the fractions at the limit show significant changes (at standard significance levels) from 1989 to 1990 and from 1991 to 1992, but insignificant differences from 1990 to 1991 and from 1992 to 1993.<sup>49</sup> Although this evidence seems at odds with the regression findings on the behavior of the rate differential from 1989 to 1990, it reinforces the regression results that, taken as a whole, seem to hint at a decline in the rate differential in the last few years. Moreover, this evidence is independent of the regression evidence offered above.

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<sup>48</sup> This evidence is informal in that no statistical tests are offered. It would be possible to test the empirical distributions against the normal, for example, but the test statistic may reject normality for the wrong reasons, i.e., the distribution of loan amounts may be non-normal even in the absence of a conforming loan rate differential.

<sup>49</sup> The chi-square values (with 1 degree of freedom), are as follows: 5.188 for the 1989–90 comparison, which is significant at the 0.023 level; 0.060 for the 1990–91 comparison, which is significant at the 0.807 level; 7.389 for the 1991–92 comparison, which is significant at the 0.007 level; and 0.772 for the 1992–93 comparison, which is significant at the 0.379 level. For purposes of calculating these chi-square tests, we used the weighted proportions renormalized to sum to the actual number of observations utilized for each year.

## V. REGRESSION ANALYSIS OF THE TIME SERIES OF THE CONFORMING LOAN DIFFERENTIAL

Regression results discussed above, together with the examination of distributions of loan amounts in the preceding section, point to favorable rate differentials for conforming loans over the period 1989 through 1993. These results do leave open the possibility of fairly wide swings in the differential within this period, however. An examination of the pattern of differentials in the past is desirable, in part because it may enable us to isolate the causal factors that have influenced the evolution of the differential. In this section we analyze the pattern of differentials on conforming loans in California on a quarterly basis.

What could cause changes in the conforming loan rate differential over time? The discussion earlier in the paper noted a number of factors that may be at work; here we attempt to measure some of these factors—crudely to be sure—and we try to judge how important they have been in the evolution of the differential. Because our attempt to isolate the importance of these factors relies on only 5 years of (nonindependent) estimated rate differentials, our specification must be parsimonious. This need in turn forces us to focus on only a few facets while ignoring others.<sup>50</sup> We emphasize that these explorations are meant only to aid intuition by presenting a regression that will help parcel out effects and identify partial correlations. In particular, we do not claim to estimate structural relationships, nor do we claim to eliminate all other interpretations. We use a regression framework only to suggest, and make a preliminary examination of, a few possibilities.

At the conceptual level, we divide the factors affecting the rate differential into two major categories: factors reflecting structural changes in the secondary market for nonconforming (and possibly conforming) loans that may have led (or may yet lead) to a new equilibrium in which there is an active secondary market for jumbo loans and, second, transitory factors that will continue to change the equilibrium even after long-run forces for securitization have run their course. The latter factors would include those affecting the probability of default, and thus the value of default insurance in the aggregate, as well as other factors that may affect the relative attractiveness of jumbo loans to investors—even influences that have nothing directly to do with advantages of the GSEs.

### *(1) Increased Investor Familiarity*

Because even profitable opportunities are not recognized and adopted instantly, it may have taken time for market participants to recognize the securitization opportunities offered by jumbo loans, and the GSEs may have facilitated the spread of this knowledge through their success in

(text continues on page 148)

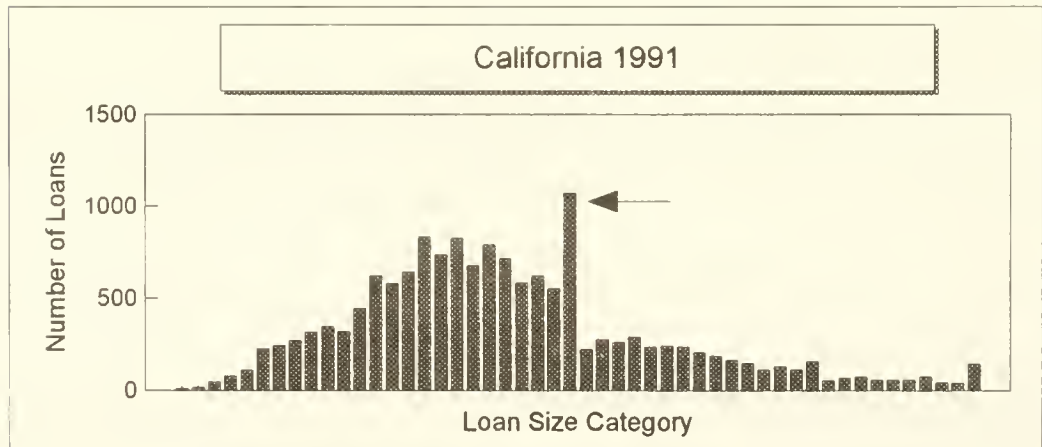
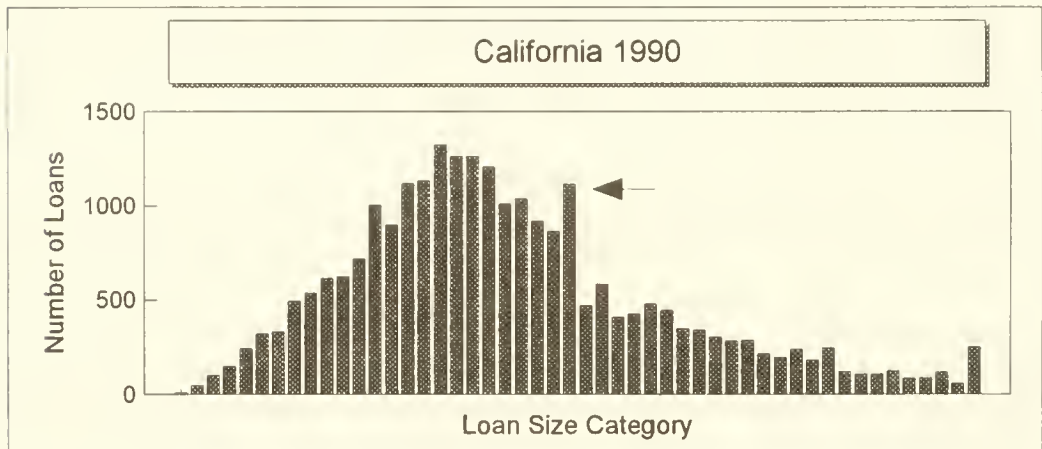
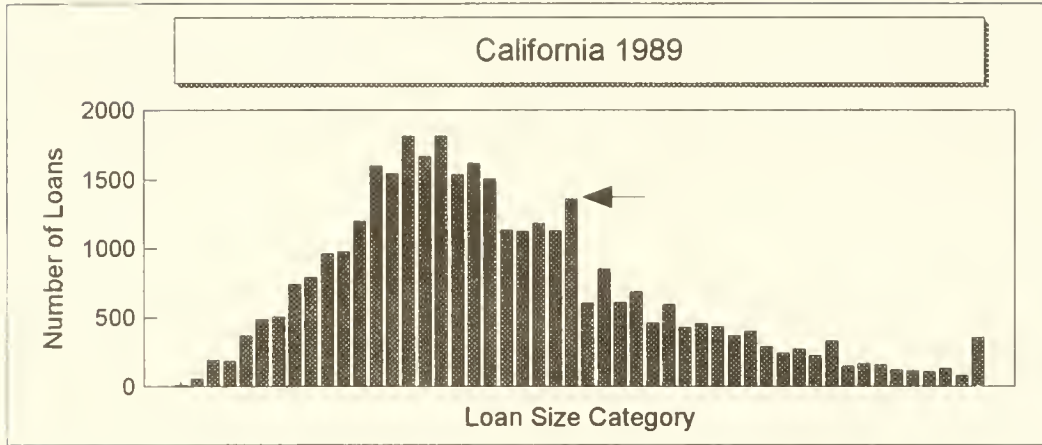
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<sup>50</sup> For example, we ignore the potential role of enhanced demand for jumbos for use in REMICS, which may have helped reduce the conforming loan differential. Because the applicable law was instituted well before the 1989 start date of our data, some REMIC-related impacts may have occurred prior to the start of our series. Nonetheless, lags in learning and lags in behavior could have led to effects occurring gradually over time.



**FIGURE 5**

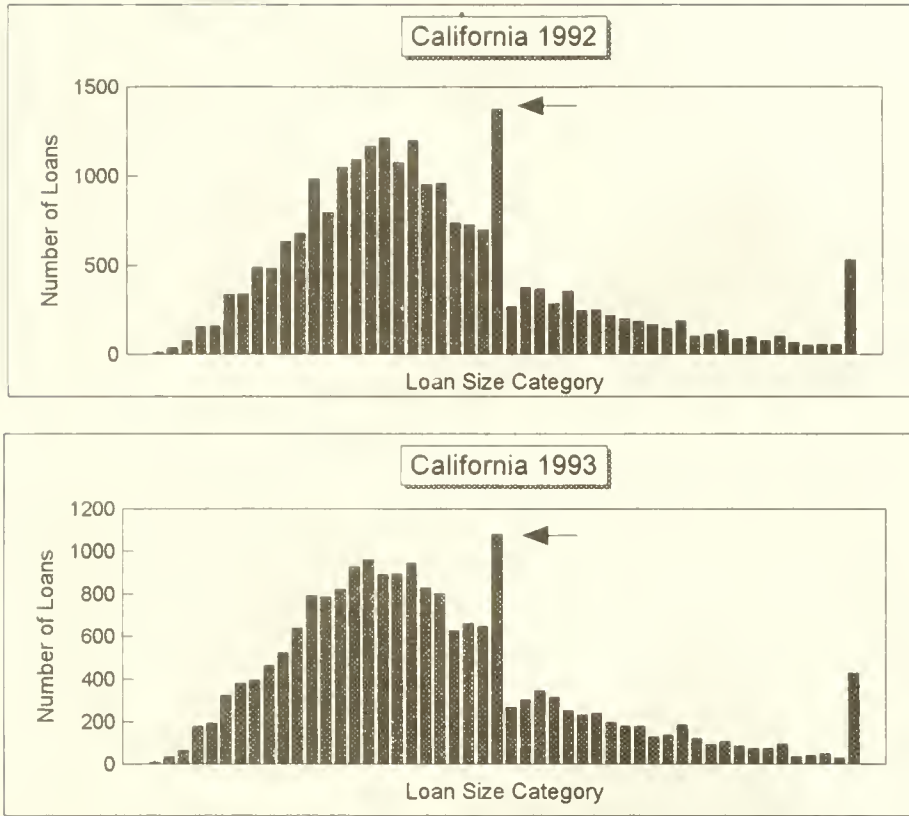
**Distribution of Loan Amounts  
California**





# FIGURE 5

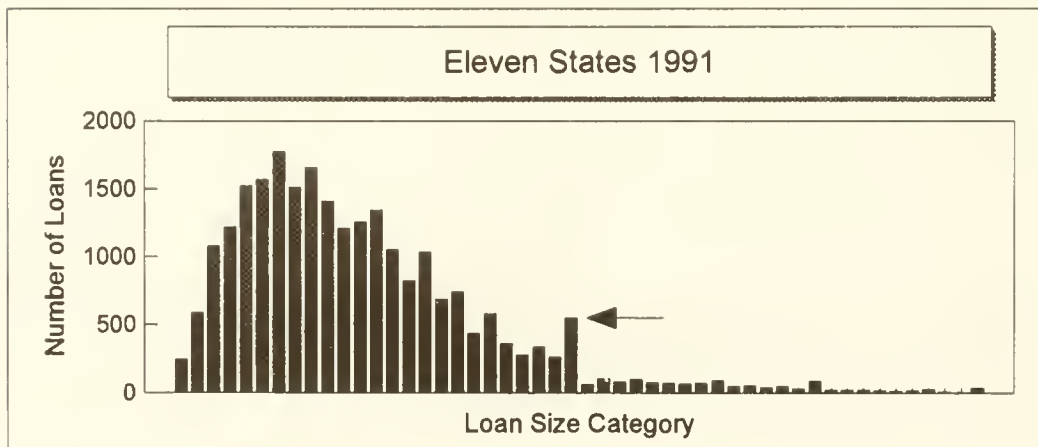
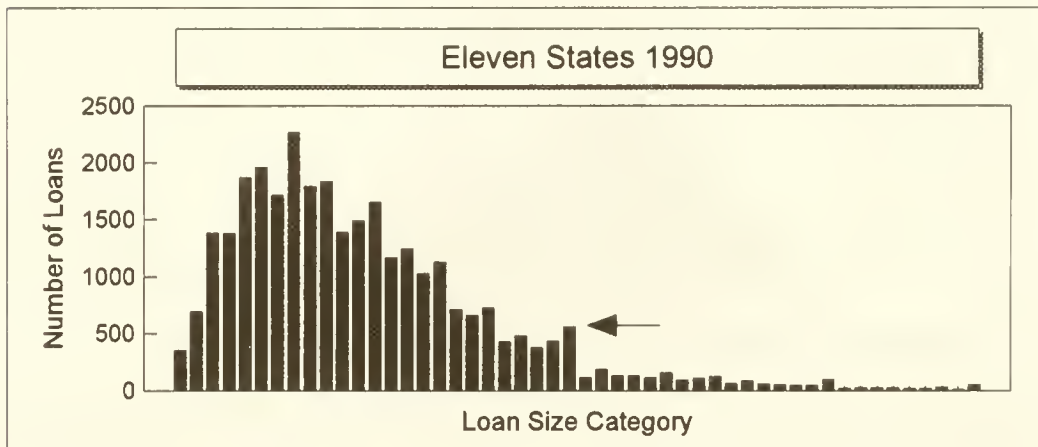
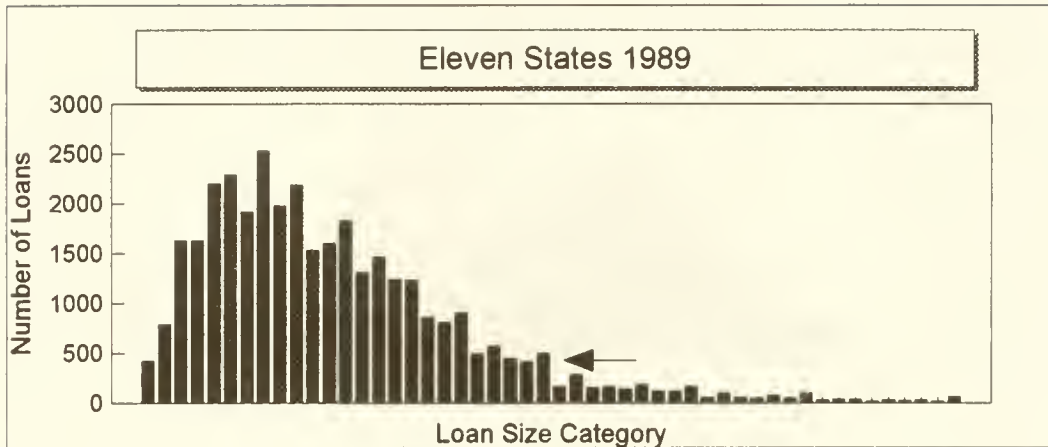
(continued)



Note: Except for the first and last category, each loan size category has width  $w = (L - 10,000)/25$ , where  $L$  is the conforming loan limit. The first category contains all loan amounts less than or equal to  $10,000 + w$ . The last category contains all loans greater than  $(2L - 10,000 - w)$ . The arrow points to the bar showing the number of loans with amounts between  $L - w + 1$  and  $L$ , inclusive.

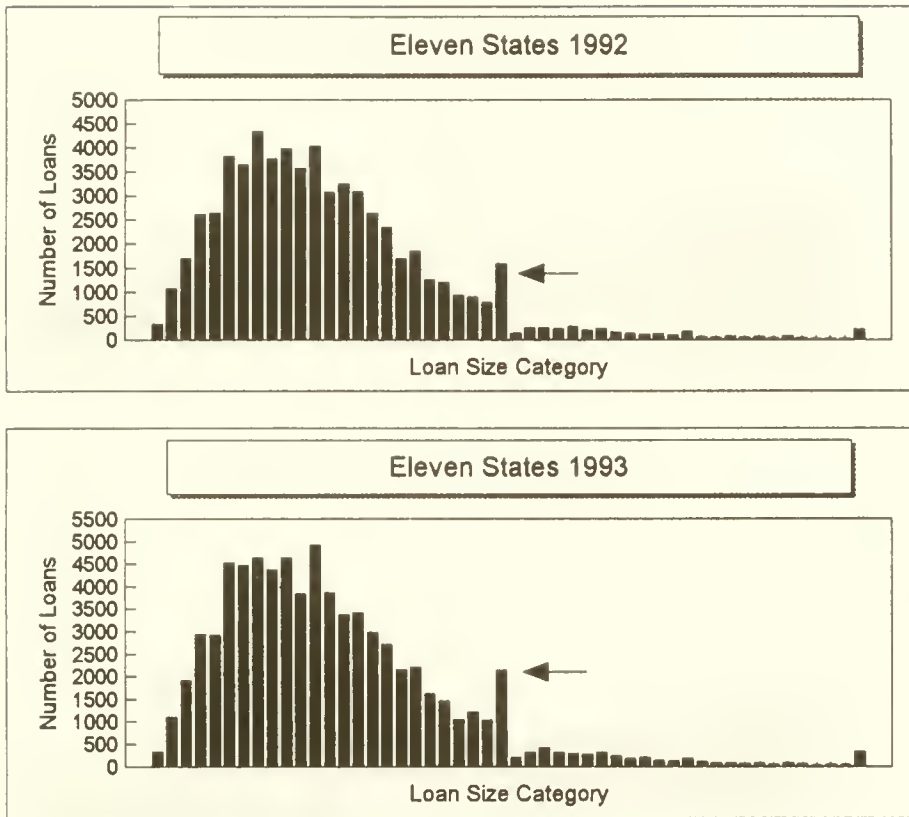
**FIGURE 6**

**Distribution of Loan Amounts  
Eleven States**



**FIGURE 6**

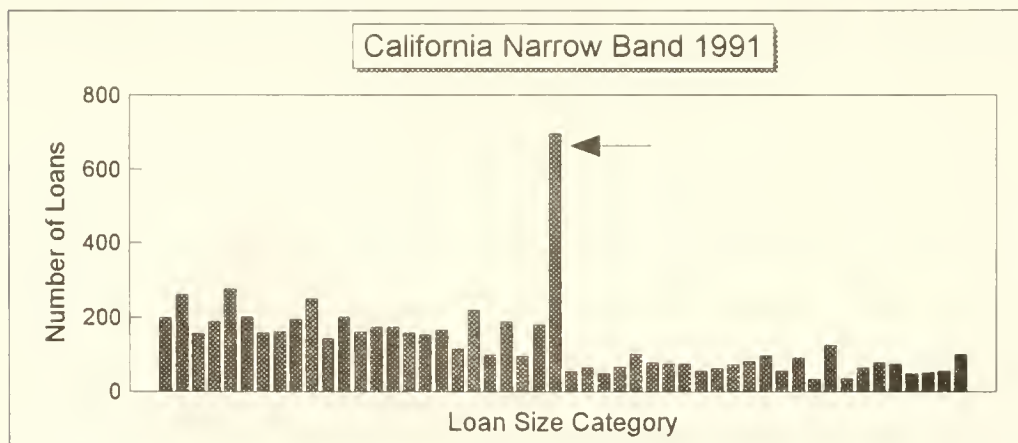
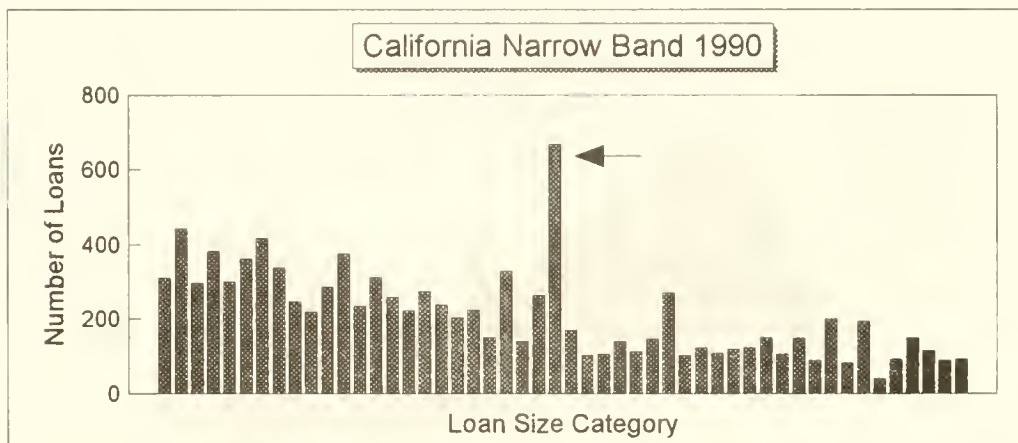
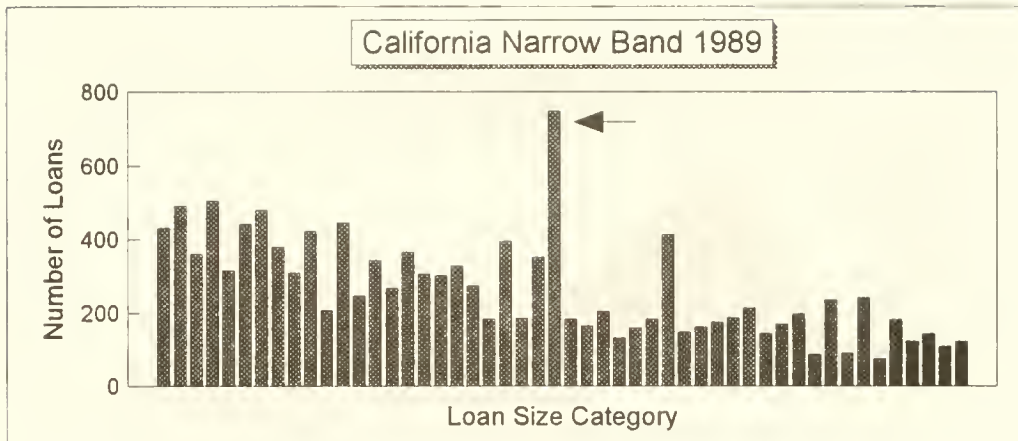
(continued)



Note: Except for the first and last category, each loan size category has width  $w = (L - 10,000)/25$ , where  $L$  is the conforming loan limit. The first category contains all loan amounts less than or equal to  $10,000 + w$ . The last category contains all loans greater than  $(2L - 10,000 - w)$ . The arrow points to the bar showing the number of loans with amounts between  $L - w + 1$  and  $L$ , inclusive.

FIGURE 7

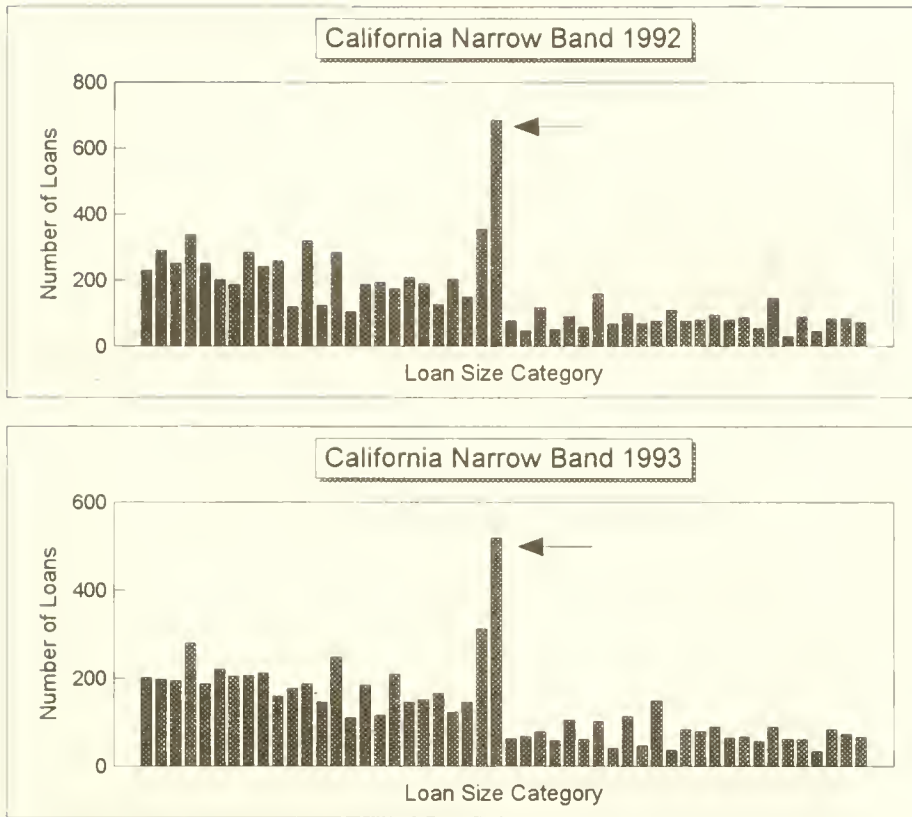
Distribution of Loan Amounts  
California Narrow Band





# FIGURE 7

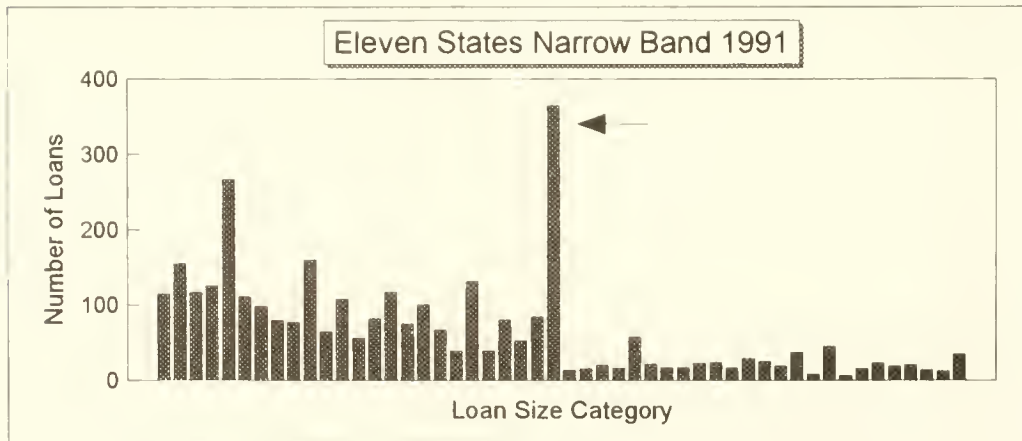
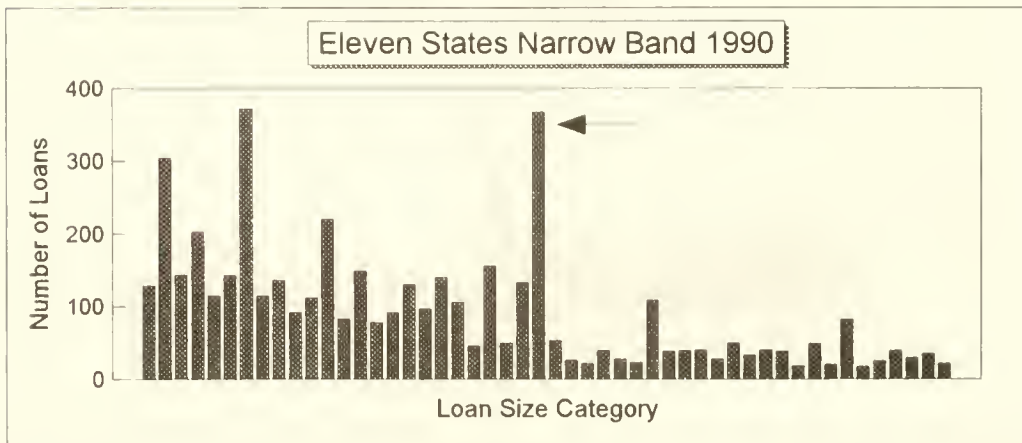
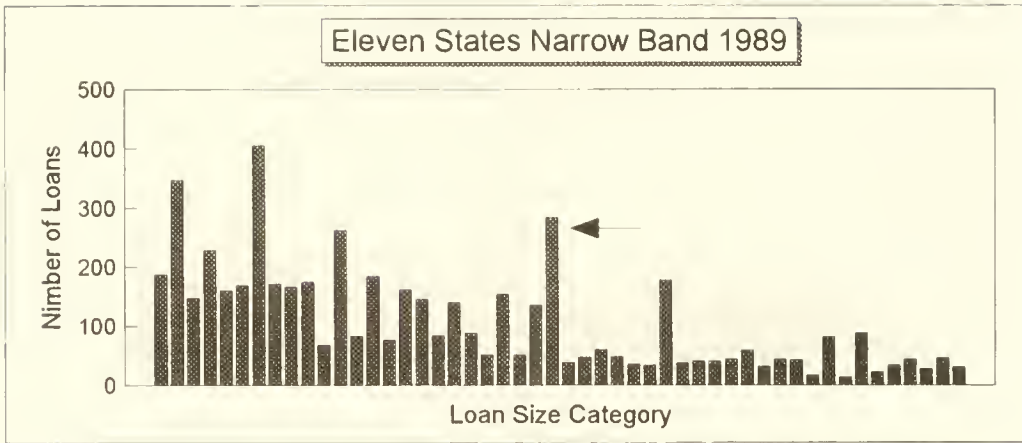
(continued)



Note: The chart shows the distribution of loans with amounts within \$50,000 on either side of the conforming loan limit. The 50 categories are each \$2,000 wide. The arrow points to the bar showing the number of loans with amounts between L-1,999 and L, inclusive.

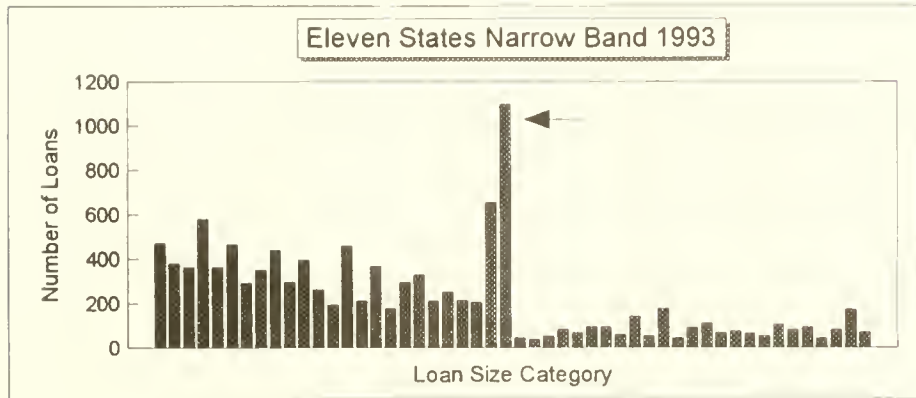
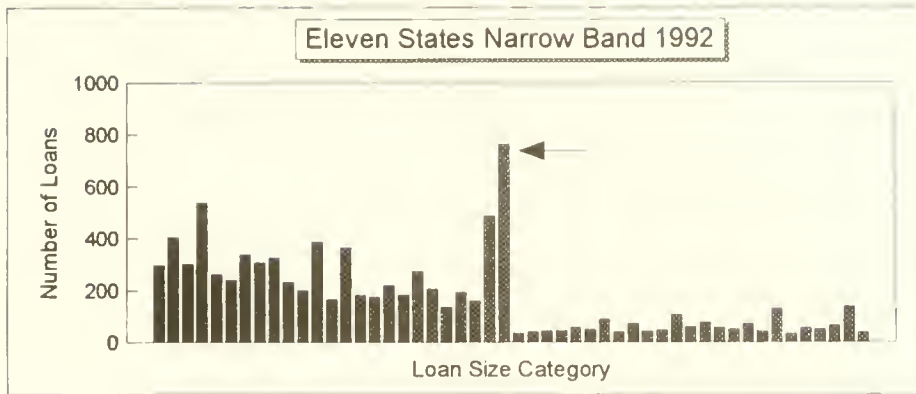
**FIGURE 8**

**Distribution of Loan Amounts  
Eleven States Narrow Band**



# FIGURE 8

(continued)



Note: The chart shows the distribution of loans with amounts within \$50,000 on either side of the conforming loan limit. The 50 categories are each \$2,000 wide. The arrow points to the bar showing the number of loans with amounts between L-1,999 and L, inclusive.

**TABLE 8**  
**Distribution of Loan Amounts Around the Conforming Loan Limit**  
**California Fixed-Rate Loans**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Limit-10,000 <	(Limit-10,000 to Limit-2,000)	(Limit-250 to Limit-2,000)	At Limit	Limit to (Limit+250)	(Limit+250 to Limit+2,000)	(Limit+2,000 to Limit+10,000)	> Limit+10,000
1989	77.74	3.23	0.90	2.59	0.00	0.08	0.49	14.40
1990	76.06	4.15	0.90	3.47	0.12	0.10	0.61	14.44
1991	70.54	4.86	1.02	4.14	0.00	0.03	0.83	17.95
1992	73.12	4.75	1.14	2.82	0.00	0.02	0.89	17.22
1993	75.52	4.21	1.00	2.24	0.01	0.10	0.65	15.41



**TABLE 9**  
**Distribution of Loan Amounts Around the Conforming Loan Limit**  
**Eleven States Fixed-Rate Loans**

Year	(1) Limit-10,000 <	(2) Limit-10,000 to Limit-2,000	(3) Limit-2,000 to Limit-250	(4) Limit-250 to Limit	(5) At Limit	(6) Limit to (Limit+250)	(7) (Limit+250) to (Limit+2,000)	(9) (Limit+2,000) to (Limit+10,000)	(10) (Limit+10,000) >
1989	94.08	1.15	0.26	0.08	0.83	0.00	0.01	0.33	3.27
1990	93.57	1.39	0.46	0.12	0.42	0.08	0.00	0.23	3.74
1991	93.21	1.34	0.36	0.36	0.57	0.00	0.01	0.11	4.03
1992	92.03	1.39	0.36	0.04	0.92	0.00	0.00	0.22	5.05
1993	90.87	1.90	0.58	0.34	0.63	0.00	0.02	0.23	5.43

**TABLE 10**  
**Distribution of Loan Amounts Around the Conforming Loan Limit**  
**California Adjustable-Rate Loans**

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Limit-10,000 <	(Limit-10,000) to (Limit-2,000)	(Limit-2,000) to (Limit-250)	(Limit-250) to Limit	At Limit	Limit to (Limit+250)	(Limit+250) to (Limit+2,000)	(Limit+2,000) to (Limit+10,000)	(Limit+10,000) >
1989	65.25	3.21	0.56	0.28	0.49	0.01	0.64	2.57	26.98
1990	63.97	3.51	0.64	0.45	0.89	0.20	0.69	2.37	27.28
1991	62.84	4.20	0.69	0.50	1.98	0.00	0.54	2.35	26.91
1992	65.34	3.47	0.81	0.04	0.63	0.19	0.30	2.16	27.06
1993	66.12	3.26	0.95	0.24	0.42	0.04	0.43	2.43	26.11

**TABLE 11**  
**Distribution of Loan Amounts Around the Conforming Loan Limit**  
**Eleven States Adjustable-Rate Loans**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Year	Limit-10,000 < (Limit-10,000)	to (Limit-2,000)	(Limit-250)	At Limit	Limit to (Limit+250)	to (Limit+2,000)	to (Limit+10,000)	> Limit+10,000	
1989	85.95	1.63	0.21	0.07	0.20	0.00	0.22	1.09	10.63
1990	82.32	2.00	0.35	0.28	0.33	0.11	0.19	0.84	13.58
1991	84.27	2.32	0.33	0.34	0.39	0.00	0.07	1.09	11.18
1992	87.46	1.86	0.26	0.05	0.47	0.06	0.10	0.82	8.92
1993	77.51	2.18	0.54	0.27	0.28	0.00	0.35	1.14	17.72

TABLE 12

**Fixed-Rate Mortgages at the Conforming  
Loan Limit as a Percentage of Fixed-Rate  
Mortgages At or Above the Limit  
(California Loans)**

Year	Percentage At Limit	Number of Observations At or Above Limit
1989	14.77	1,235
1990	18.51	856
1991	18.04	790
1992	13.45	1,082
1993	12.15	953

securitizing conforming loans. One would expect the spread of knowledge among private securitizers and investors to have occurred gradually over time, and while there is no obvious way to measure this flow of knowledge, we proxy this effect by the proportion of new jumbo originations that were securitized—PROPSEC.

#### A. Structural Developments in the Secondary Market for Nonconforming Loans

PROPSEC is calculated by merging data from three sources. The numerator, which is private securitization in each quarter, is obtained from *The Mortgage Market Statistical Annual for 1995*. A potential disadvantage of the series is that it could include seasoned loans, as well as nonconforming securitized loans that fell below the conforming loan limit; our understanding, however, is that the latter make up a small percentage of total private securitization volume. The denominator of PROPSEC, which attempts to measure the volume of jumbo originations in each quarter, starts with the volume of conventional, single-family originations by thrifts, mortgage companies, and commercial banks, as reported in the U.S. Department of Housing and Urban Development Survey of Mortgage Lending Activity. We multiply this value by the quarterly ratio of jumbo loan volume relative to all conventional, single-family, purchase-money loan volume, as calculated from MIRS. The latter manipulation assumes that the share of jumbos in refinances is the same as among purchase-money loans.<sup>51</sup>

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<sup>51</sup> We checked this assumption by using some numbers reported in Dougherty (1994) to calculate the implied fraction of jumbos among refinances in 1992 and 1993. The implied share of jumbos among refinances was a few percentage points higher than among purchase-money loans in one year, slightly smaller in the other year.



Although the PROPSEC measure represents the interplay of a host of factors, not simply knowledge or acceptance of jumbo-backed securities, it is an important summary measure of the extent to which jumbo borrowers are able to tap into the wider capital market, and as such it indicates the extent of acceptance of jumbo securities. We assume, then, that the extent of securitization is demand driven in the sense that variations in securitization represent changing desires for jumbo securities on the part of investors.<sup>52</sup> To the extent that our proxy is imperfect, the outcome of this gradual growth in knowledge and acceptance of jumbo loans may also show up as a gradual, unexplained narrowing of the differential between conforming and jumbo loans.

## *(2) Enhanced Liquidity of Jumbo-Backed Securities*

As discussed above, enhanced liquidity or marketability of jumbos may have been a factor in the narrowing of the conforming loan differential in recent years. Moreover, there may well have been a snowballing effect: enhanced liquidity may beget additional securitization, which in turn enhances liquidity.

In their study of rate spreads between Ginnie Maes and Treasuries, Rothberg, Nothaft, and Gabriel (1989) proxy the liquidity of Ginnie Maes by the ratio of the outstanding balance of Ginnie Maes at the end of a period relative to the value at the end of 1976, when full liquidity was supposedly achieved. Although in the instant case there is no assurance that the market for jumbo-backed securities has yet achieved its long-term level of liquidity, we adopt a similar strategy. We include a variable RELSTOCK that measures the total value of all private-label securities outstanding relative to total private issues outstanding as of the end of 1993.<sup>53</sup> (Clearly, normalizing by end-of-1993 values has no effect other than to facilitate interpretation.) The series on private-label securities outstanding is obtained from *The Mortgage Market Statistical Annual for 1995*.

## *(3) Scale Economies and Efficiency in Forming or Administering Private-Label Securities*

We noted above that the GSEs may enjoy scale economies in forming and administering their mortgage pools. With the growth of jumbo-backed securities, these same kinds of scale economies may have lowered costs to those organizing private-label pools, which may in turn have been passed through to jumbo borrowers, thus lowering rate differentials. Indeed, the purported willingness of servicers to cut rates in return for large package deals on jumbo servicing speaks to the existence of

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<sup>52</sup> It is conceivable, though unlikely, that changes in securitization rates could reflect supply shifts on the part of securitizers. If these securities are completely integrated into the larger capital market so that relative prices are determined by intrinsic characteristics of the underlying securities, changes in relative supplies will be quickly absorbed into the capital markets with no changes in relative security values. In their study of spreads between Ginnie Mae securities and Treasuries and between Freddie Mac MBSs and Treasuries, Rothberg, Nothaft, and Gabriel (1989) found no significant effect of supply shifts on spreads, thus pointing to a well-integrated market for GSE securities. Jumbo-backed securities, however, may not yet be fully integrated into the capital market at large, and thus increases in relative supply may result in increased yields for jumbo-backed securities. Higher yields presumably will translate into higher rates for jumbo mortgages at the retail level, and thus a widening of the rate differential between conforming and jumbo loans.

<sup>53</sup> RELSTOCK may also proxy cumulative growth in knowledge and familiarity with jumbo-backed securities.

such economies. In addition, private conduits may have gained efficiency as they became more experienced in securitizing jumbo loans.

The extent of scale economies may be related to the size of individual deals, as well as the level of business by individual servicers and underwriters. We expect the variable PROPSEC to proxy some of these scale economies. The variable RELSTOCK would be expected to proxy cumulative gains in efficiency with experience.

## **B. Transitory Changes Affecting the Rate Differential**

As noted above, other variables affecting the rate differential are transitory factors that may continue to have an impact even after long-run securitization trends have run their course. In our simple empirical model, we attempt to account for only two such temporary influences: first, a variable that attempts to proxy changes in default probabilities that would differentially affect the value of private-label securities and, second, a variable that proxies changes in prepayment probabilities, which would likely have a greater impact on securities backed by jumbo loans. In utilizing only these two factors, we have attempted to control for two of the more important sources of transitory movements in rate differentials. The very limited number of time-series observations over which estimation is possible effectively precludes a more extensive set of controls.

### *(1) Changes in Default Probabilities*

If default risk is important in jumbo-backed securities and if the GSE guarantee on their securities issues is seen as (largely or completely) removing default risk, then events that lower default risk for all mortgages, or that lower it for jumbo mortgages as a whole, would be expected to reduce the spread between jumbo- and GSE-produced MBSs, and thus, presumably, the rate differential at the level of the individual loan. Similarly, events that leave default probabilities unchanged but reduce losses in the event of default should be expected to reduce the value of the GSE guarantee and thus help close the rate gap between conforming and jumbo loans.<sup>54</sup>

What would be most desirable here is a measure of investor perception of general default probabilities for current originations. We use the four-quarter change in the California unemployment rate, DIFFUR, as a crude proxy for expected adverse changes in the labor market and, more indirectly, the housing market.<sup>55</sup>

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<sup>54</sup> Our interest is in identifying factors that alter aggregate default rates but do not vary across individual loans in cross section. Presumably the latter interloan differences are already removed through our regressions that adjust loan rates for observable differences in risk-related factors. Changes over time in unobserved default-related characteristics of individual loans that are differentially present among jumbos would also cause changes in measured rate differentials over time. The regressions used to estimate the rate differentials cannot control for unobserved interloan differences in risk-related factors.

<sup>55</sup> Following the ideas in Duca and Rosenthal (1989) and Rothberg, Nothaft, and Gabriel (1989), we also tried using the spread between Aaa and Baa corporate bond yields as a measure of credit risk or more general confidence in the economy. These experiments were generally unsuccessful.

## *(2) Changes in Financial Market Conditions*

Factors that operate differentially on jumbo loans (or jumbo borrowers) can affect the measured rate differential even if these factors are unrelated to the GSEs' guarantees, securitization, and the like. Interest rates on jumbo mortgages may respond to changes in financial market conditions at different speeds or in different ways than conforming mortgages. For example, jumbo borrowers are more sensitive to prepayment incentives than are conforming loan borrowers. Thus, markets in which future prepayment incentives appear weaker should differentially favor jumbo loans, thereby reducing the measured rate differential. Similarly, interest rates on jumbos may be more sensitive to changes in overall market liquidity or rate volatility.

To capture the possibility of prepayment activity having differential effects on jumbo loans, we include a variable INTDIFF, which is the difference between the current 10-year (constant maturity) Treasury rate and the rate two quarters earlier. The assumption is that rising rates portend less prepayment activity, which should differentially favor jumbo loans and shrink the conforming loan differential.

Finally, we include SLOPE, the difference between the 10-year constant maturity Treasury rate and the 6-month Treasury bill rate, and the interaction between SLOPE and INTDIFF. The basis for this interaction is the claim that jumbos are relatively valuable CMO inputs when rates are falling and the yield curve is steeply sloped.

One other issue that we address is the possibility of a seasonal pattern in the differential. We do not have any a priori reason to expect such a pattern, but the bottom panel in Figure 3 appears to indicate smaller differentials in the second half of the year. Thus, we report some specifications using quarterly indicator variables to capture seasonality.

### **C. Tentative Findings**

To estimate the effects of the measurable factors on the conforming loan differential, we regress the estimated quarterly rate differentials for California on the variables discussed above. Each observation is weighted by the reciprocal of the estimated standard error of the rate differential.<sup>56</sup> This procedure does not fully account for the covariance structure. In particular, we ignore the covariances between the pairs of estimated rate differentials, an omission that probably results in overstatement of the statistical significance of the regression estimates presented below.

Table 13 shows the weighted least squares results, and Table 14 gives the means and standard deviations for the variables. The first and third models include only the unemployment rate, the securitization variables, and INTDIFF. The second and fourth models add SLOPE and its interaction with INTDIFF. The first two models show the coefficients without seasonal indicators, while the

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<sup>56</sup> These equations were estimated using weighted least squares. We also estimated them using the Cochrane-Orcutt procedure to correct for autocorrelation, and the results were essentially the same.

**TABLE 13**

**Time Series Regressions  
Conforming Loan Differential  
California, 1989–1993  
(Absolute T-Ratios in Parentheses)**

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
DIFFUR	-0.030 (1.54)	-0.004 (0.12)	-0.036 (2.13)	-0.032 (1.32)	-0.015 (0.78)
RELSTOCK	0.390 (3.05)	0.410 (2.14)	0.282 (2.31)	0.134 (0.88)	0.272 (1.96)
PROPSEC	0.025 (0.13)	0.051 (0.27)	0.213 (1.10)	0.315 (2.05)	0.257 (1.66)
INTDIFF	0.054 (1.61)	0.146 (2.50)	0.061 (2.10)	0.176 (4.14)	0.064 (1.66)
SLOPE	- -	-0.083 (1.51)	- -	-0.063 (1.61)	-0.035 (1.24)
INTDIFF * SLOPE	- -	-0.074 (1.87)	- -	-0.092 (3.17)	-0.019 (0.93)
CONSTANT	-0.554 (12.51)	-0.481 (8.38)	-0.638 (12.17)	-0.560 (11.77)	-0.636 (14.6)
R-Square	.7064	.7697	.8227	.9134	.6226
Adjusted R-Square	.6282	.6634	.7193	.8354	.5546
Number of Observations	20	20	20	20	60

second two include them.

We use the convention adopted in earlier tables to sign the conforming loan differentials: the dependent variable is negative when the differential favors conforming loans. Thus, a positive coefficient estimate on an independent variable means that increases in that variable are associated with reductions in the conforming loan differential.

Since signs of coefficients on the included variables do not change across specifications, we may consider qualitative effects by looking at any model that contains the variable of interest. Using Model 1 as an example, we note that all variables have the expected signs. More rapidly rising unemployment rates (DIFFUR), which may lead to worse housing market conditions and higher default probabilities, differentially favor conforming loans that can be securitized with the GSE guarantee and thus lead to a widening of the conforming loan differential. Increases in the stock of jumbo-backed securities (RELSTOCK) and in the fraction of jumbo originations securitized



**TABLE 14**

**Weighted Means and Standard Deviations  
Quarterly Data, 1989–1993**

Variable	Mean	Standard Deviation
Estimated Differential <sup>1</sup>	-0.0395	0.116
DIFFUR	0.750	0.999
RELSTOCK	0.529	0.267
PROPSEC	0.430	0.175
INTDIFF	-0.674	0.581
SLOPE	2.050	1.155
SLOPE * INTDIFF	-1.621	1.543

<sup>1</sup> From Table 7, California Loans

(PROPSEC) lead to reductions in the differential. More rapidly rising interest rates (INTDIFF) are expected to lead to reduced prepayment activity, which differentially affects jumbo borrowers, thus reducing the conforming loan differential.

Comparing Models 1 and 3 reveals that the estimates are somewhat sensitive to the inclusion of seasonal indicators. The variables generally have the expected signs, but the pattern of significance varies. In both models RELSTOCK (the stock of jumbos in the quarter relative to the total stock at year-end 1993) is significant, but PROPSEC is not. With seasonal controls the coefficient on RELSTOCK is smaller, and coefficients on the California unemployment rate change (DIFFUR) and the change in the 10-year Treasury (INTDIFF) become larger and more significant.

Estimates from Models 2 and 4 bear a relationship to each other that is similar to that of Models 1 and 3 in the following sense. When a coefficient changes in magnitude in going from Model 1 to Model 3, it changes in the same direction in going from Model 2 to Model 4.

Further reviewing Models 2 and 4, we see some evidence of changes in the conforming loan differential via changes in the demand for jumbos for use in forming multiclass securities. As was noted earlier, when interest rates are falling and the yield curve is steeply sloped, issuers of multiclass securities allegedly utilize the differential prepayment sensitivity of jumbo borrowers by using jumbo loans to stock the short-term tranches of multiclass securities. The empirical findings in Models 2 and 4 support this contention. When the yield curve is inverted or has a slope (as measured by SLOPE) of less than about 2, more rapidly rising interest rates (higher values of INTDIFF) lead to a reduced conforming loan differential, as discussed above. However, when the slope of the yield curve is steep

enough (approximately 2 or more), the situation reverses: Steeply declining interest rates help reduce the differential, presumably the result of increased demand for jumbos by issuers of multiclass securities.<sup>57</sup>

As an additional check on our estimates we present an analysis of monthly, rather than quarterly, conforming rate differentials for California S&Ls and mortgage companies combined. The conforming rate differentials that constitute the dependent variable for this analysis were obtained by estimating a mortgage rate regression for each year of MIRS separately. These regressions have the same form as the California May–July regressions on which we reported in Section III.D, except that each regression is run on a full year of MIRS data and, for this reason, we include a full set of monthly indicators. Moreover, we now permit variation in the conforming loan differential each month (via inclusion of month indicators interacted with conforming loan status), and it is these estimates of the monthly differential that we extract and analyze here. (The pattern of estimated monthly differentials looks very similar to the quarterly pattern for California examined earlier.)

Model 5 in Table 13 presents the regression analysis that utilizes the monthly differentials as the dependent variable.<sup>58</sup> The form of the regression is otherwise identical to Model 4. The DIFFUR, INTDIFF, SLOPE, and INTDIFF\*SLOPE variables are now measured on a monthly basis, but PROPSEC and RELSTOCK continue to vary in the same way as in the quarterly models. Comparing Model 5 to Model 4, we see that most estimated impacts are smaller with the notable exception of RELSTOCK, which has twice as large an estimated impact as in Model 4. All qualitative effects remain as in Model 4, however.

Taken at face value, the estimates in Table 13 imply an important role for growth in jumbo securitization. The estimated size and nature of this role, however, is sensitive to model specification.

## VI. INTERPRETATION

### A. Interpretation of the Statistical Results

The results of this investigation indicate that interest rates on conforming loans have been lower than interest rates on comparable jumbo loans throughout the 1989–93 period. The regression evidence in Section III and the evidence on the distribution of loan amounts in Section IV uniformly support this conclusion.

The results are less definitive with respect to the size of the conforming loan effect at any particular time. MIRS data have some irregularities and discontinuities that increase the difficulty of drawing firm conclusions about changes in the differential over time. One problem is that the pattern

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<sup>57</sup> Our regression undoubtedly misspecifies these effects, but using this very limited amount of data presents few viable options for more complex functional forms. Our hope is that in the range of the data used here, our approximation is not too wide of the mark.

<sup>58</sup> Earlier comments regarding the possible lack of serial independence in the quarterly observations apply here as well.

depends on the lender type used to define the sample. Loans originated by mortgage companies would be the preferred choice under ideal conditions. Mortgage companies now account for the largest share of originations, and the terms on their loans are less likely to be influenced by such factors as the interest rate on deposits or other business relationships the borrower may have with the lender. Furthermore, the estimated differentials for mortgage companies show more consistency across geographic areas than do the estimates for S&Ls. However, mortgage companies report relatively few loans in MIRS before 1991, and the consistency and quality of the lender-type classification in MIRS is suspect. Consequently, we regard the estimates that include loans from S&Ls and mortgage banks as the best alternative.

Having made that choice, we see a few points about the behavior of conforming loan differentials over time. First in 1989 and again in 1991, the differential was well above the levels observed in other years. In the periods of its elevation, the differential was generally in or near the 45- to 55-basis-point range, considerably above the 20- to 30-basis-point range in 1986 and 1987. The differential appears to have dropped back to a range of 25 to 40 basis points in 1992 and 1993, although it was at or a little below the low end of that range at the end of 1993. Moreover, the rate differential at the end of 1993 appears to be as low as, or even a bit lower than, the 1986 level. Essentially the same pattern is observed for California and the 11-state aggregate, and this consistency gives us some confidence that the variation is not a consequence of miscoded fields or a byproduct of our handling of the data.

Assessing the character and origins of these changes in the differential is more art than science. Regression analysis using the quarterly estimated differentials can provide some general insight, but the estimates are not robust and the variable list does not include some important factors. With the understanding that our assessment is admittedly subjective, we offer the following conjectures. We currently believe that the baseline range for the conforming loan differential for the middle 1990s is 25 to 40 basis points. We regard the elevated differentials observed in 1989 and 1991 as transitory, most likely attributable to the disruptive effects of the resolution of the thrift crisis and the introduction of risk-based capital standards for depository institutions. Similarly, we suspect that low differentials in late 1993 were an aberration, the product of financial market conditions that were particularly favorable to production of CMOs and securitization of jumbo loans. We would not be surprised if financial turbulence pushed the conforming loan differential to 30 basis points or higher in 1994.

## **B. Implications for the Importance of Agency Status**

We regard these results as evidence that the implicit federal backing of GSE securities reduces rates on fixed-rate conforming loans. By 1993 the technology of securitizing nonconforming loans was well established, and the terms on jumbo loans in the primary market reflected the value of the loans to investors in the secondary market. Thus, the traditional characterization of jumbo loans as illiquid instruments is no longer accurate. The conforming loan differential reflects differences between two distinct modes of securitization, rather than differences between loans that can be securitized and loans that cannot.



The differences in rates for conforming and nonconforming loans arise primarily from differences between the GSEs and private issuers in the expense and completeness of the respective guarantees against default. Privately issued securities rely on collateral quality and credit enhancement, which are expensive relative to the GSE guarantee that backs securities from Freddie Mac and Fannie Mae. Even with such credit enhancement, private issues trade at a spread above GSE securities, largely because private issues have some residual default risk.

Economies of scale and a somewhat deeper, more liquid market for GSE securities are often said to contribute to the cost advantage enjoyed by Freddie Mac and Fannie Mae, and our regression analysis of the time series of differentials provides tentative support for this proposition. The widening market for jumbo securities has permitted these securities to enjoy similar advantages, presumably on a smaller scale. The two proxies for jumbo securitization activity are associated with falling differentials in most of our regressions. In view of this evidence and the short history of private securitization, we expect continued production of privately issued mortgage securities to exert some further downward pressure on the conforming loan differential.

An additional factor working to the advantage of the GSEs is the set of risk-based capital standards used by bank regulators. Commercial banks are required to carry less than half the capital backing against a GSE MBS than is required for a private-issue security. Because this disparity probably overstates the difference in relative risk, it represents a subsidy for banks to invest in GSE issues. Banks hold large fractions of outstanding mortgages and mortgage securities, so their behavior is an important determinant of relative yields in the market.

Using the estimated values of the conforming loan differential to project changes in mortgage interest rates that would result from changes in the charters of Freddie Mac and Fannie Mae is even more problematic than identifying a benchmark level for the differential. The estimates probably provide good order-of-magnitude predictions of the consequences of modest changes in the scope of GSE operations. An example would be a reduction in the conforming loan limit on the order of 10%. Our estimates suggest that such a change would result in an increase of 25 to 40 basis points in interest rates on fixed-rate mortgages in the affected size range. The fixed-rate mortgages rendered nonconforming by the hypothetical change would become candidates for private-label securitization, and the markets would have little difficulty digesting additions of this magnitude to the supply of private securities. In fact, the additional securities might increase the liquidity of private issues, and the added liquidity might make the rate increase on the affected mortgages more likely to be in the lower portion of our range.

The complete withdrawal of agency status from Freddie Mac and Fannie Mae would require much larger adjustments than a modest change in the conforming loan limit, and the estimated differentials cannot be applied to before-and-after comparisons with the same degree of confidence. A key issue is the market's ability to absorb the additional volumes of pool insurance, subordinated securities, and other byproducts of credit enhancement that would be generated if the technology of private securitization were applied to conforming loans. If the demand/supply of such products is not perfectly elastic, costs of securitization would increase and mortgage interest rates would rise by more than the 25 to 40 basis points suggested by our estimates. Another contributor to uncertainty



is the response of banking regulators, who might not give the resulting MBSs the same low-risk weights that they now bestow on GSE securities. Forces operating in the opposite direction might be present also, particularly any effect of additional liquidity resulting from high volume. Thus, while we have no alternative to the 25- to 40-basis-point range, we have much less confidence that this range would actually contain the change in mortgage interest rates that would ultimately result from a withdrawal of agency status from Freddie Mac and Fannie Mae.

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## APPENDIX

### TABLE 15

**Estimated Conforming Loan Differential  
Contract Rates, May–July, Weighted Regressions:  
Coefficients from Untrimmed Samples  
(Absolute T-Statistics in Parentheses)**

	California			Eleven-State Aggregate		
	S&Ls	Mortgage Companies	S&Ls and Mortgage Companies	S&Ls	Mortgage Companies	S&Ls and Mortgage Companies
1989	-.565 (6.70)	-.526 (5.55)	-.533 (9.22)	-.103 (0.94)	-1.114 (4.10)	-.631 (6.33)
1990	-.295 (3.63)	-.331 (4.36)	-.330 (6.54)	-.371 (6.05)	.005 (0.04)	-.078 (3.53)
1991	-.454 (7.96)	-.212 (2.63)	-.261 (5.37)	-.364 (7.30)	-.279 (2.90)	-.308 (7.30)
1992	.440 (4.46)	-.329 (4.58)	-.078 (1.34)	-.173 (3.92)	-.203 (7.33)	-.211 (9.52)
1993	-.229 (4.68)	-.333 (5.20)	-.295 (7.60)	-.259 (6.67)	-.255 (11.92)	-.256 (13.93)



TABLE 16

**Weighted Least Squares Regression Estimates  
Combined Lenders, California, May–July 1989–1993  
(Absolute T-Statistics in Parentheses)**

Variable*	1989	1990	1991	1992	1993
Intercept	11.6909 (21.05)	11.5291 (25.46)	11.3659 (29.54)	10.3340 (22.60)	9.2637 (22.57)
Log of Loan Amount	- 0.0373 (0.81)	- 0.0673 (1.83)	- 0.1069 (3.39)	- 0.1173 (3.16)	- 0.1251 (3.76)
LTV1	0.0181 (0.70)	0.0399 (1.72)	0.0072 (0.36)	- 0.0481 (1.98)	- 0.0098 (0.41)
LTV2	0.0608 (1.41)	0.0184 (0.59)	- 0.0321 (1.17)	- 0.0982 (3.06)	- 0.0353 (1.07)
LTV3	0.0563 (1.55)	0.0971 (3.73)	0.1096 (5.35)	0.0196 (0.77)	0.0610 (2.43)
New Home	0.0421 (1.52)	0.1619 (6.84)	0.1087 (4.05)	0.0154 (0.54)	- 0.0736 (2.47)
Conforming Loan	- 0.4961 (10.95)	- 0.3582 (9.91)	- 0.4723 (16.00)	- 0.3219 (9.06)	- 0.2530 (7.70)
R-Square	0.5305	0.2135	0.3325	0.2561	0.1528
Adjusted R-Square	0.5178	0.1894	0.3121	0.2356	0.1317
Number of Observations	1,063	978	1,013	1,159	1,237

\* Each regression also included MSA indicators (areas outside MSAs were the omitted group) and month indicators for June and July.

**TABLE 17**

**Weighted Least Squares Regression Estimates  
 Combined Lenders, Eleven States, May–July 1989–1993  
 (Absolute T-Statistics in Parentheses)**

Variable*	1989	1990	1991	1992	1993
Intercept	13.4785 (38.33)	11.5605 (46.19)	10.6566 (48.32)	10.0328 (80.04)	8.9784 (81.10)
Log of Loan Amount	- 0.2135 (7.97)	- 0.1003 (5.09)	- 0.0716 (4.10)	- 0.1080 (10.81)	- 0.1105 (12.60)
LTV1	0.0411 (1.65)	-0.0213 (1.13)	- 0.0115 (0.67)	0.0378 (3.42)	0.0013 (0.13)
LTV2	0.0997 (2.99)	0.0008 (0.04)	0.0707 (3.40)	0.0502 (4.30)	0.0045 (0.40)
LTV3	0.1182 (4.51)	0.0316 (1.70)	0.0765 (4.74)	0.1119 (12.38)	0.0962 (11.54)
New Home	- 0.0130 (0.43)	- 0.0486 (2.62)	- 0.0118 (0.53)	- 0.0063 (0.65)	- 0.0019 (0.23)
Conforming Loan	- 0.5927 (9.60)	- 0.3775 (8.42)	- 0.4251 (12.16)	- 0.2972 (16.23)	- 0.2409 (14.30)
R-Square	0.3803	0.1236	0.1477	0.2514	0.1288
Adjusted R-Square	0.3734	0.1171	0.1409	0.2495	0.1270
Number of Observations	1,638	2,422	2,269	7,270	8,845

\* Each regression also included MSA indicators (areas outside MSAs were the omitted group) and month indicators for June and July.

**TABLE 18**

**Weighted Means and Standard Deviations  
Combined Lenders, California, May–July 1989–1993**

<b>Variable</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>
<b>Means:</b>					
Contract Rate	10.70	10.45	9.68	8.61	7.50
Log of Loan Amount	11.81	11.84	11.91	11.95	11.94
LTV1	0.31	0.22	0.22	0.29	0.32
LTV2	0.08	0.11	0.10	0.12	0.11
LTV3	0.12	0.17	0.22	0.26	0.28
New Home	0.26	0.22	0.09	0.14	0.12
Conforming Loan	0.87	0.87	0.85	0.85	0.83
<b>Standard Deviations:</b>					
Contract Rate	0.513	0.309	0.293	0.362	0.343
Log of Loan Amount	0.358	0.360	0.364	0.377	0.404
LTV1	0.463	0.416	0.417	0.453	0.467
LTV2	0.275	0.309	0.297	0.324	0.317
LTV3	0.324	0.379	0.415	0.437	0.450
New Home	0.437	0.414	0.290	0.349	0.322
Conforming Loan	0.337	0.336	0.361	0.361	0.379

TABLE 19

**Weighted Means and Standard Deviations  
Combined Lenders, Eleven States, May–July 1989–1993**

Variable	1989	1990	1991	1992	1993
<b>Means:</b>					
Contract Rate	10.63	10.19	9.51	8.56	7.48
Log of Loan Amount	11.40	11.46	11.48	11.56	11.56
LTV1	0.30	0.22	0.23	0.18	0.17
LTV2	0.12	0.15	0.13	0.15	0.12
LTV3	0.25	0.24	0.31	0.43	0.48
New Home	0.13	0.20	0.09	0.18	0.20
Conforming Loan	0.97	0.97	0.96	0.95	0.95
<b>Standard Deviations:</b>					
Contract Rate	0.498	0.368	0.321	0.346	0.320
Log of Loan Amount	0.461	0.424	0.450	0.437	0.448
LTV1	0.457	0.417	0.422	0.381	0.376
LTV2	0.325	0.355	0.336	0.352	0.331
LTV3	0.432	0.426	0.464	0.495	0.500
New Home	0.335	0.400	0.290	0.386	0.399
Conforming Loan	0.180	0.175	0.207	0.220	0.217



TABLE 20

Estimated Conforming Loan Differential  
 May–July, Weighted Regressions  
 (Absolute T-Statistics in Parentheses)

Year	California			Eleven-State Aggregate		
	S&Ls	Mortgage Companies	S&Ls and Mortgage Companies	S&Ls	Mortgage Companies	S&Ls and Mortgage Companies
<b>A. Contract Rates</b>						
1989	-.453 (10.20)	-.505 (5.27)	-.496 (10.95)	-.306 (4.23)	-.594 (3.83)	-.593 (9.59)
1990	-.342 (6.80)	-.354 (6.39)	-.358 (9.91)	-.350 (6.98)	-.361 (3.73)	-.377 (8.42)
1991	-.475 (11.02)	-.461 (9.91)	-.472 (16.01)	-.330 (7.94)	-.491 (6.35)	-.425 (12.16)
1992	-.174 (3.10)	-.380 (7.11)	-.322 (9.06)	-.210 (5.47)	-.302 (13.34)	-.297 (16.23)
1993	-.192 (4.46)	-.279 (5.35)	-.253 (7.70)	-.278 (7.82)	-.234 (11.91)	-.241 (14.30)
<b>B. Effective Rates</b>						
1989	-.435 (9.33)	-.587 (6.14)	-.544 (11.66)	-.319 (4.92)	-.537 (3.87)	-.548 (9.84)
1990	-.344 (6.18)	-.372 (5.98)	-.382 (9.22)	-.331 (7.17)	-.434 (4.50)	-.408 (9.21)
1991	-.464 (10.28)	-.445 (8.31)	-.458 (13.57)	-.290 (8.60)	-.463 (6.30)	-.389 (12.50)
1992	-.166 (2.62)	-.353 (6.05)	-.301 (7.54)	-.130 (3.53)	-.357 (15.83)	-.335 (18.31)
1993	-.184 (4.69)	-.307 (5.86)	-.256 (8.15)	-.261 (7.95)	-.264 (15.04)	-.263 (17.33)

TABLE 21

**Estimated Conforming Loan Differential  
May–July, Unweighted Regressions  
(Absolute T-Statistics in Parentheses)**

Year	California			Eleven-State Aggregate		
	Savings & Loans	Mortgage Companies	S&Ls and Mortgage Companies	Savings & Loans	Mortgage Companies	S&Ls and Mortgage Companies
<b>A. Contract Rates</b>						
1989	.452 (10.13)	-.505 (5.27)	-.471 (11.59)	-.370 (5.33)	-.594 (3.83)	-.451 (7.10)
1990	.330 (6.49)	-.354 (6.39)	-.347 (8.94)	-.331 (6.37)	-.361 (3.73)	-.344 (7.47)
1991	-.479 (11.00)	-.461 (9.91)	-.486 (14.86)	-.328 (7.72)	-.491 (6.35)	-.355 (9.41)
1992	-.160 (2.99)	-.382 (7.12)	-.244 (6.27)	-.140 (3.57)	-.286 (12.90)	-.252 (12.64)
1993	-.192 (4.47)	-.303 (5.61)	-.243 (7.16)	-.240 (6.76)	-.238 (12.01)	-.236 (13.52)
<b>B. Effective Rates</b>						
1989	-.436 (9.32)	-.587 (6.14)	-.472 (10.97)	-.330 (5.20)	-.537 (3.87)	-.401 (6.88)
1990	-.330 (5.88)	-.372 (5.98)	-.364 (8.17)	-.314 (6.64)	.434 (4.50)	.335 (7.70)
1991	-.477 (10.52)	-.445 (8.31)	-.481 (13.30)	-.291 (8.46)	-.463 (6.30)	-.317 (10.09)
1992	-.162 (2.67)	-.355 (6.04)	-.235 (5.30)	-.048 (1.28)	-.325 (14.90)	-.243 (12.39)
1993	-.176 (4.59)	-.315 (5.83)	-.228 (7.25)	-.220 (6.76)	-.263 (15.03)	-.248 (15.80)

TABLE 22

Estimated Conforming Loan Differential  
 Quarterly Data, Weighted Regressions for  
 Savings and Loans and Mortgage Companies  
 (Absolute T-Statistics in Parentheses)

Year	California				Eleven-State Aggregate			
	QI	QII	QIII	QIV	QI	QII	QIII	QIV
<b>A. Contract Rates</b>								
1989	-.450 (8.01)	-.486 (9.01)	-.485 (16.37)	-.523 (19.15)	-.446 (6.82)	-.502 (7.32)	-.617 (10.80)	-.558 (13.37)
1990	.530 (15.84)	.362 (9.35)	-.377 (10.21)	-.326 (5.21)	-.489 (10.29)	-.302 (6.56)	-.450 (11.51)	-.299 (5.52)
1991	-.503 (10.83)	-.517 (16.39)	-.471 (15.61)	-.327 (8.31)	-.496 (9.46)	-.449 (11.16)	-.323 (9.47)	-.240 (6.03)
1992	-.493 (13.23)	.396 (11.57)	-.230 (6.00)	-.377 (8.34)	-.396 (13.27)	-.286 (14.85)	-.354 (17.03)	-.323 (13.27)
1993	-.354 (8.34)	-.281 (9.17)	-.156 (4.81)	-.222 (6.24)	-.339 (12.92)	-.263 (14.91)	-.189 (11.31)	-.171 (9.15)
<b>B. Effective Rates</b>								
1989	-.522 (8.38)	.519 (9.38)	-.517 (16.94)	-.503 (17.24)	.464 (7.35)	-.437 (7.07)	-.557 (10.66)	-.518 (14.26)
1990	-.521 (14.57)	-.395 (9.24)	-.377 (9.02)	-.293 (4.40)	-.409 (9.78)	.261 (5.97)	-.486 (13.22)	-.295 (5.61)
1991	-.527 (9.86)	-.511 (14.27)	-.488 (13.55)	-.269 (6.23)	-.461 (9.12)	-.424 (12.05)	-.259 (7.70)	-.249 (6.69)
1992	-.519 (12.89)	-.379 (9.75)	-.233 (5.48)	-.412 (8.35)	-.419 (14.77)	-.332 (17.29)	-.356 (17.79)	-.356 (15.38)
1993	-.331 (6.97)	-.264 (8.96)	-.166 (5.05)	-.212 (6.02)	-.382 (14.79)	-.292 (18.29)	-.196 (12.92)	-.192 (11.71)

TABLE 23

**Estimated Conforming Loan Differential  
Quarterly Data, Unweighted Regressions for  
Savings and Loans and Mortgage Companies  
(Absolute T-Statistics in Parentheses)**

Year	California				Eleven-State Aggregate			
	QI	QII	QIII	QIV	QI	QII	QIII	QIV
<b>A. Contract Rates</b>								
1989	-.323 (5.36)	-.447 (8.13)	-.440 (15.50)	-.404 (15.57)	-.397 (5.23)	-.326 (4.75)	-.554 (11.08)	-.360 (9.14)
1990	-.430 (13.02)	-.343 (8.39)	-.412 (10.66)	-.369 (6.21)	-.345 (6.88)	-.345 (6.96)	-.355 (7.93)	-.361 (6.96)
1991	-.447 (9.72)	-.517 (14.80)	-.476 (13.71)	-.324 (8.20)	-.405 (7.37)	-.404 (9.45)	-.322 (8.93)	-.290 (7.46)
1992	-.415 (10.04)	-.301 (8.30)	-.217 (5.32)	-.322 (7.00)	-.331 (10.25)	-.242 (11.88)	-.305 (14.20)	-.279 (10.82)
1993	-.297 (6.82)	-.287 (9.36)	-.154 (4.39)	-.217 (5.99)	-.299 (10.77)	-.258 (13.84)	-.178 (10.13)	-.192 (9.93)
<b>B. Effective Rates</b>								
1989	-.350 (5.07)	-.466 (7.96)	-.427 (14.58)	-.397 (14.10)	-.404 (5.52)	-.245 (3.83)	-.481 (10.72)	-.342 (9.79)
1990	-.436 (12.60)	-.368 (7.97)	-.402 (9.16)	-.332 (4.96)	-.278 (6.28)	-.299 (6.45)	-.346 (8.63)	-.334 (7.20)
1991	-.442 (8.21)	-.522 (13.38)	-.444 (11.63)	-.329 (7.57)	-.381 (7.86)	-.353 (9.75)	-.256 (8.03)	-.233 (6.63)
1992	-.427 (9.70)	-.284 (6.84)	-.218 (4.75)	-.329 (6.39)	-.311 (10.11)	-.238 (11.72)	-.272 (13.37)	-.271 (10.94)
1993	-.275 (5.59)	-.256 (8.95)	-.153 (4.44)	-.191 (5.29)	-.314 (11.65)	-.275 (16.30)	-.177 (11.20)	-.203 (11.98)



**IMPLICATIONS OF PRIVATIZATION:  
THE COSTS TO FANNIE MAE AND FREDDIE MAC**

**Brent W. Ambrose  
Arthur Warga**

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*Commentaries on the October 28, 1994 draft of this paper by James D. Shilling and Douglas O. Cook and Fannie Mae's review of the draft paper begin on pages 205, 211, and 218, respectively, accompanied by comments on the Cotterman-Pearce paper. Ambrose-Warga's response to the commentaries begins on page 222.*

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*Prior to his work on this paper, Mr. Ambrose co-authored a paper on disparity in lending patterns between racial groups as a consultant to Fannie Mae's Office of Housing Policy Research. Mr. Warga reported that he had no prior or current relationships with Fannie Mae or Freddie Mac.*

*A draft of the Ambrose-Warga paper was submitted on October 28, 1994 and presented in a seminar at the U.S. Department of the Treasury on December 1, 1994. The Cotterman-Pearce paper was also presented on this occasion. Ambrose-Warga slightly revised their paper after the seminar; they submitted the final version on January 11, 1995. The written commentaries by Mr. Cook and Mr. Shilling were submitted on December 9, 1994, and December 26, 1994, respectively, and the Fannie Mae Review was submitted on February 8, 1995. Ambrose-Warga's response to the Cook and Shilling commentaries was submitted on March 7, 1995, and their response to the Fannie Mae Review on March 27, 1995.*

## I. INTRODUCTION AND SUMMARY OF PRINCIPAL FINDINGS

In 1992 the Congress passed the Housing and Community Development Act, which directed the U.S. Department of Housing and Urban Development, the U.S. Department of the Treasury, the U.S. Congressional Budget Office, and the U.S. General Accounting Office to each prepare and submit to the Congress a study regarding the desirability and feasibility of repealing the federal charters of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), eliminating any federal sponsorship of the two government-sponsored enterprises (“GSEs”) and allowing them to continue to operate as fully private entities.<sup>1</sup> As part of the fulfillment of this mandate, this paper was commissioned to analyze the costs that Fannie Mae and Freddie Mac may expect to incur as wholly private organizations continuing their current operations with respect to the purchasing and securitization of single-family mortgages.

To analyze the costs associated with privatization, this paper examines five issues: (1) the effects of privatization on the costs of operating the debt-financed mortgage portfolio; (2) the impact on the costs of securitizing mortgages; (3) the impact of privatization on the cost of equity; (4) the impact of any change in the cost of equity on the operations of the mortgage portfolio and mortgage securitization; and (5) the effects of privatization on interest rates for conventional mortgages.

To obtain estimates of the effects of privatization, this paper concentrates on estimating the current advantages that Fannie Mae and Freddie Mac enjoy relative to other firms with respect to market premiums on their securities. Using the current estimates of the premium advantages, we infer the potential costs that will be imposed on the GSEs upon privatization. The maintained assumption is that after privatization, the market will price their securities as private entities instead of government agencies, and any current premium advantage will disappear. Although the form of privatization is unknown, it is reasonable to expect that the GSEs will not be able to maintain their current ‘AAA+’ rating because of the elimination of any “implicit” federal sponsorship.<sup>2</sup>

The impact of privatization of the GSEs on the securities market is likely to be substantial. Fannie Mae has grown dramatically over the past 5 years. Total assets have doubled to more than \$243 billion, and the market value of equity has tripled to more than \$24 billion. In terms of total assets, Fannie Mae now ranks among the six largest firms listed on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX), or Nasdaq Stock Exchange. Freddie Mac has also enjoyed remarkable growth, seeing its total assets increase by a factor of 2.5 over the past 5 years to

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<sup>1</sup> Public Law 102–550, Section 1355 (106 Stat. 3672).

<sup>2</sup> Stanton (1996) considers several different forms of privatization. Explicit in his analysis is the assumption that as private entities, securities issued by Fannie Mae and Freddie Mac would have no connection with the federal government and thus would lose any advantage from the current “implicit” guarantee that is derived from the current entities’ relationship with the federal government. Our analysis also assumes that as private entities, the GSEs will not be viewed by the market as “too big to fail.”

its current value of more than \$85 billion, with equity currently valued at about \$11 billion.<sup>3</sup> Thus given the size of Fannie Mae and Freddie Mac, any estimate of the impact of privatization is at best an educated guess. Implicit in our analysis is the assumption that any efforts to privatize the GSEs will completely sever the relationship between the GSEs and the federal government such that the market will not view the newly private entities as “too big to fail.”

To address these issues, we divide the paper into four main sections following this introduction, which is Section I. In Section II we calculate yield and return spreads between Fannie Mae and Freddie Mac issues and similar ‘AAA,’ ‘AA,’ and ‘A’ corporate bonds, controlling for liquidity and tax effects. Envisioning that Fannie Mae and Freddie Mac will become either ‘AAA,’ ‘AA,’ or ‘A’-rated, we match bonds issued by corporations rated ‘AAA,’ ‘AA,’ and ‘A’ to those issued by the GSEs in terms of features that include liquidity, callability, taxability, and maturity. This permits us to accurately calculate market-based yield and return spreads and answer the important question of what increased cost of debt financing the GSEs will face after privatization. The yield (return) spread is the difference in yield between a GSE bond and a similar ‘AAA,’ ‘AA,’ or ‘A’ corporate bond (matched by salient characteristics such as maturity and coupon).<sup>4</sup> Thus, using the difference between the returns on GSE debt and corporate debt as a measure of the premium placed on private debt versus government agency debt, we calculate the anticipated change in premium that will occur, contingent upon the new debt rating given to a privatized Fannie Mae or Freddie Mac. The results indicate that Fannie Mae and Freddie Mac bond portfolios were not significantly different from ‘AAA’-rated bonds. If so, this may imply that if the GSEs receive ‘AAA’ ratings after privatization, they may not experience any significant increase in the returns on their securities. The results also indicate that Fannie Mae and Freddie Mac bonds enjoy a return advantage relative to corporate or finance industry bonds. In addition, the results indicate that if the GSEs became either ‘AA’ or ‘A,’ investors would demand increases in returns by 1% to 2% per annum, respectively.

In Section III we estimate changes in the GSEs’ cost structures generated by changes in their respective costs of equity. This will allow a discussion of the implications of changes in costs of debt and equity to the GSEs’ overall costs of capital (i.e., weighted average of their costs of debt and equity). In addition, using the results from these analyses, we will be in a position to speculate on the impact of privatization on the spread between conforming and nonconforming (jumbo) mortgage interest rates. The results indicate that Fannie Mae and Freddie Mac would experience an approximately 1.5% increase in their weighted average cost of capital if privatized. These results are consistent with the estimated increase in the cost of debt cited above.

In Section IV we summarize the findings from the previous sections and discuss the implications of these results on the operations of the GSEs in continuing their current mortgage purchase and securitization operations. In Section V, using the results from these analyses, we provide

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<sup>3</sup> According to MarketBase rankings.

<sup>4</sup> We avoid the usual yield spreads relative to government bonds here because we will examine both callable and non-callable issues. There are no callable government bonds with call features comparable to those found in Fannie Mae and Freddie Mac issues.



estimates of the impact of privatization on mortgage interest rates, assuming that the GSEs are able to pass these costs on to the mortgage market. The analysis indicates that mortgage rates could increase anywhere from 14 to 29 basis points and that the GSEs could conceivably face a significant decline in their ability to operate as profitable concerns. Return on equity could drop to values near zero. To maintain equity-to-capital ratios of 4% or 5% may require raising equity equal to a substantial proportion (e.g., 40% to 100%) of their current equity's market values.

## II. DIFFERENCES IN YIELD AND RETURN SPREADS

### A. Introduction

The purpose of this section is to provide the perspective from which we analyze the increased cost of debt financing to the GSEs under privatization. All comparisons will be made separately for callable and non-callable issues. Yield and return spreads of GSE bonds relative to those of firms that the GSEs might conceivably look like when privatized (see below) will be calculated based on historical analysis of trader-quoted data from March 1985 through March 1994.<sup>5</sup> We require an assumption about the post-privatization rating of the GSEs, and rather than commit to a particular scenario we choose to provide a variety of choices ranging from 'A' to 'AAA' and over various industrial sectors. Specifically, we examine the differences in debt financing costs between the GSEs and the following:

- (1) Portfolios of 'AAA,' 'AA,' and 'A' corporate issues.
- (2) Portfolios of 'AAA,' 'AA,' and 'A' banking and finance issues.
- (3) General Electric (GE) Capital Corporation.
- (4) Portfolios of U.S. Government issues.

The supply of all straight long-term investment grade debt ('AAA' through 'BBB') issued by private banks, brokerages, and finance companies is less than \$200 billion.<sup>6</sup> The outstanding debt of Fannie Mae is more than \$201 billion, and Freddie Mac has more than \$48 billion.<sup>7</sup> This suggests that the resulting supply/demand shifts for Fannie Mae and Freddie Mac debt in a privatization could be substantial. Unfortunately it also means that there are no data points that can be used to investigate such a shift, as the scale of such an event is unprecedented. Thus, we assume that yield and return spread changes occurring to Fannie Mae and Freddie Mac will, to a first order, be captured by

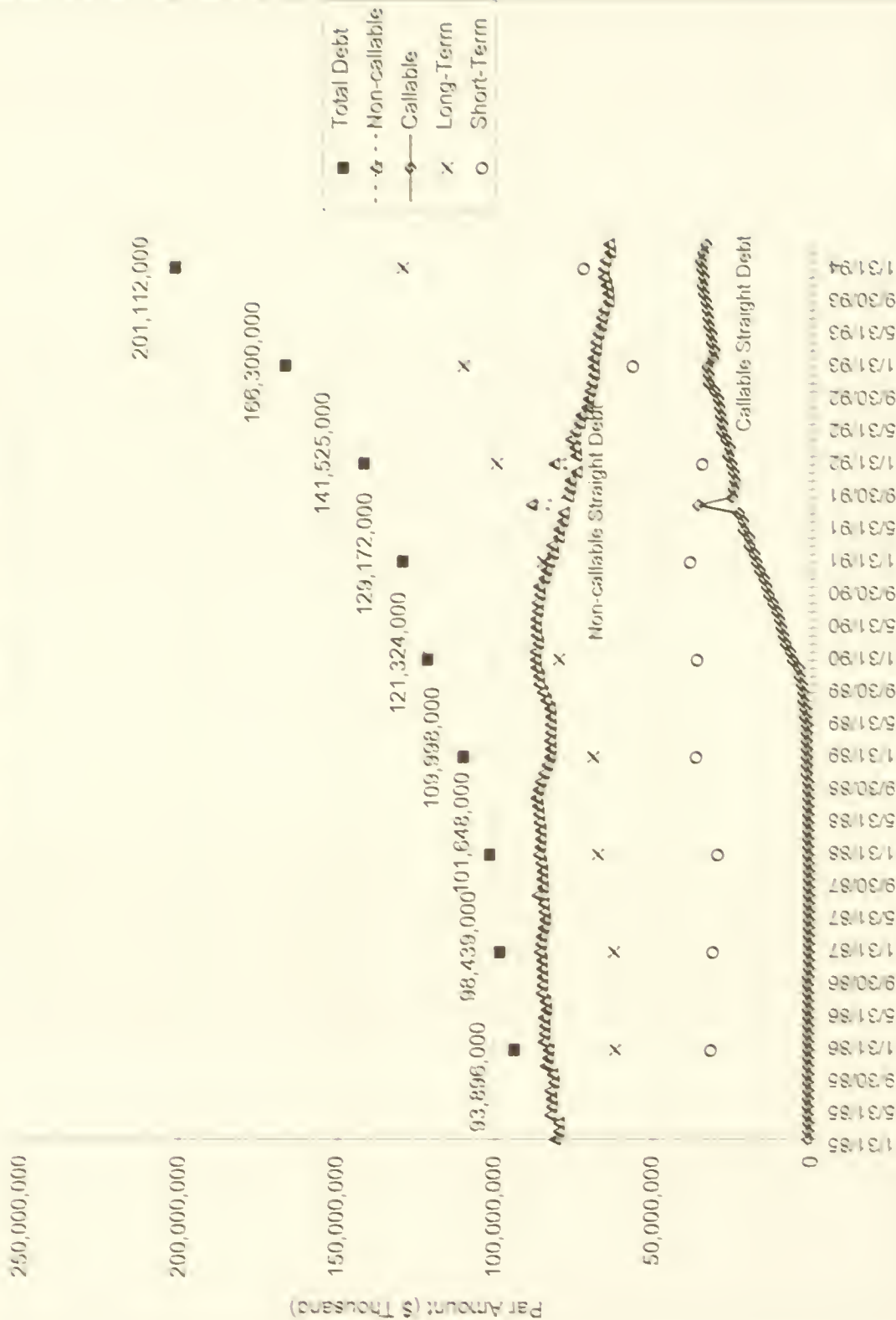
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<sup>5</sup> The yield on a bond is defined as the implicit annual rate of return earned on a bond held from the current month to its maturity date. The monthly return on a bond is defined as the percentage change in price from the preceding month to the current month (where price includes any accrued interest).

<sup>6</sup> Figures based on par amount of outstanding debt represented in Lehman Brothers' corporate bond index issued by banks, brokerages, and finance companies. Nonstandard issues, such as Medium Term Notes, step-ups, and structured notes are not included. Original-issue debt under a year in maturity is also excluded.

<sup>7</sup> Based on year-end 1993 balance sheets for each GSE. Freddie Mac debt excludes principal and interest due to Mortgage Participation Certificate investors. Nonstandard issues are included in these figures.

**FIGURE 1**  
Fannie Mae Debt Outstanding



existing yield and return spreads in the private sector and that supply/demand shifts will result in second-order effects.

The nature of debt financing by the GSEs has evolved dramatically over the past 10 years. The most recent 2- to 3-year period has seen them respond to the investment community by providing "exotic" debt instruments that may be structured within a swap to effectively produce the more common (or plain vanilla) debt that they have traditionally issued. Structured notes and step-up notes are two examples of these exotic instruments, and they are often issued as Medium Term Notes (MTNs). This activity permits the GSEs to save at least 5 to 15 basis points in financing costs.<sup>3</sup>

Figure 1 shows on a monthly basis the history of outstanding long-term callable and non-callable Fannie Mae debt since 1985. Straight debt issues (i.e., not exotic or option-laden, with the exception of a standard call feature) are seen to tilt strongly toward callable issues over the past few years. This is in contrast to the bond markets in general, where the issuance of callable debt has been reduced to a small fraction of non-callable debt issues. The total amount of Fannie Mae debt outstanding on an annual basis is also plotted in Figure 1. The gap between the totals represented by straight callable and non-callable debt is accounted for by original issue short-term debt (which is not available to us) and MTNs, which are plotted in Figure 2. MTN growth has been dramatic for Fannie Mae since issuance of these notes began accelerating in 1991.<sup>4</sup>

Figure 3 presents outstanding debt for Freddie Mac since 1985. Until recently Freddie Mac relied almost entirely on short-term debt, but has in the past few years assumed increasing amounts of long-term debt.

Our goal is to examine historical yield and return spreads between GSE bonds and "equivalent" bonds issued by firms that the GSEs may resemble when privatized. Aside from attempting to match the coupon and maturity of two bonds, we must also address differing liquidity and tax characteristics. Features related to liquidity are issue amount outstanding and seasoning (or age), and for taxes, coupon can serve to distinguish two bonds. In a recent study, Ambrose and Warga (1995) examine the liquidity and tax effects on pricing Fannie Mae bonds. Results from this study suggest that liquidity and coupon-related tax effects are significant factors that should be accounted for as much as possible. This leads us to the following design for creating our return and yield spreads:

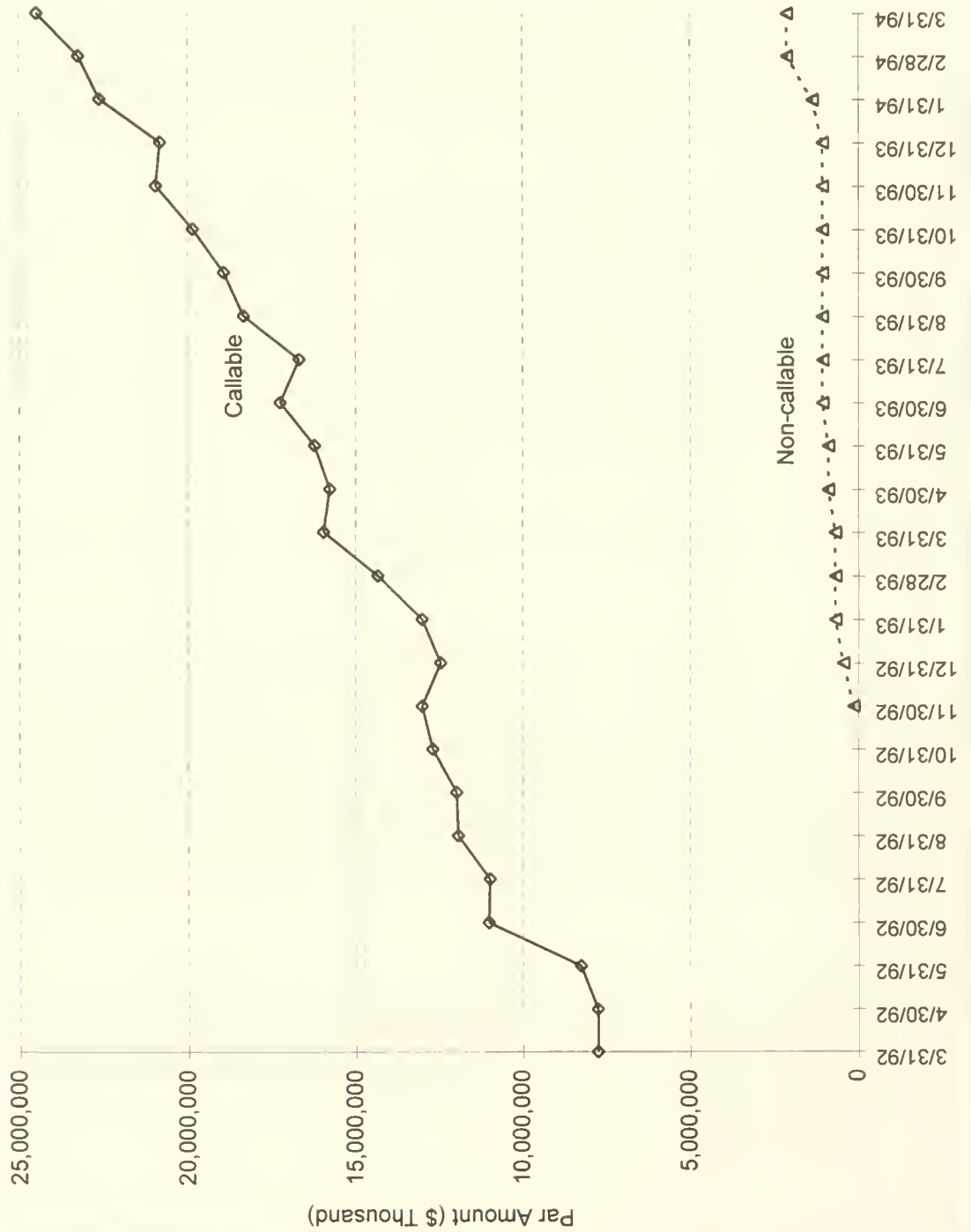
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<sup>3</sup> See "Anatomy of the Structured Note Market," by Leland E. Crane and Joseph D. Arguagion, *Merrill Lynch Global Fixed Income Research*, June 14, 1994. In this study we assume that any savings garnered from issuance of structured notes is a savings that is also available to the private sector. While GSE issues currently comprise about 70% of the structured note market, that figure has fallen from about 95% in 1990. This suggests that any advantage enjoyed by GSEs relative to corporates is diminishing rapidly over time. Of course recent events in the fixed-income marketplace have put a bold (and, many believe temporary) end to much of the structured note activity.

<sup>4</sup> See "Anatomy of the Medium-Term Note Market," by Leland E. Crane, *Federal Reserve Bulletin*, August 1993, pp.751-764.

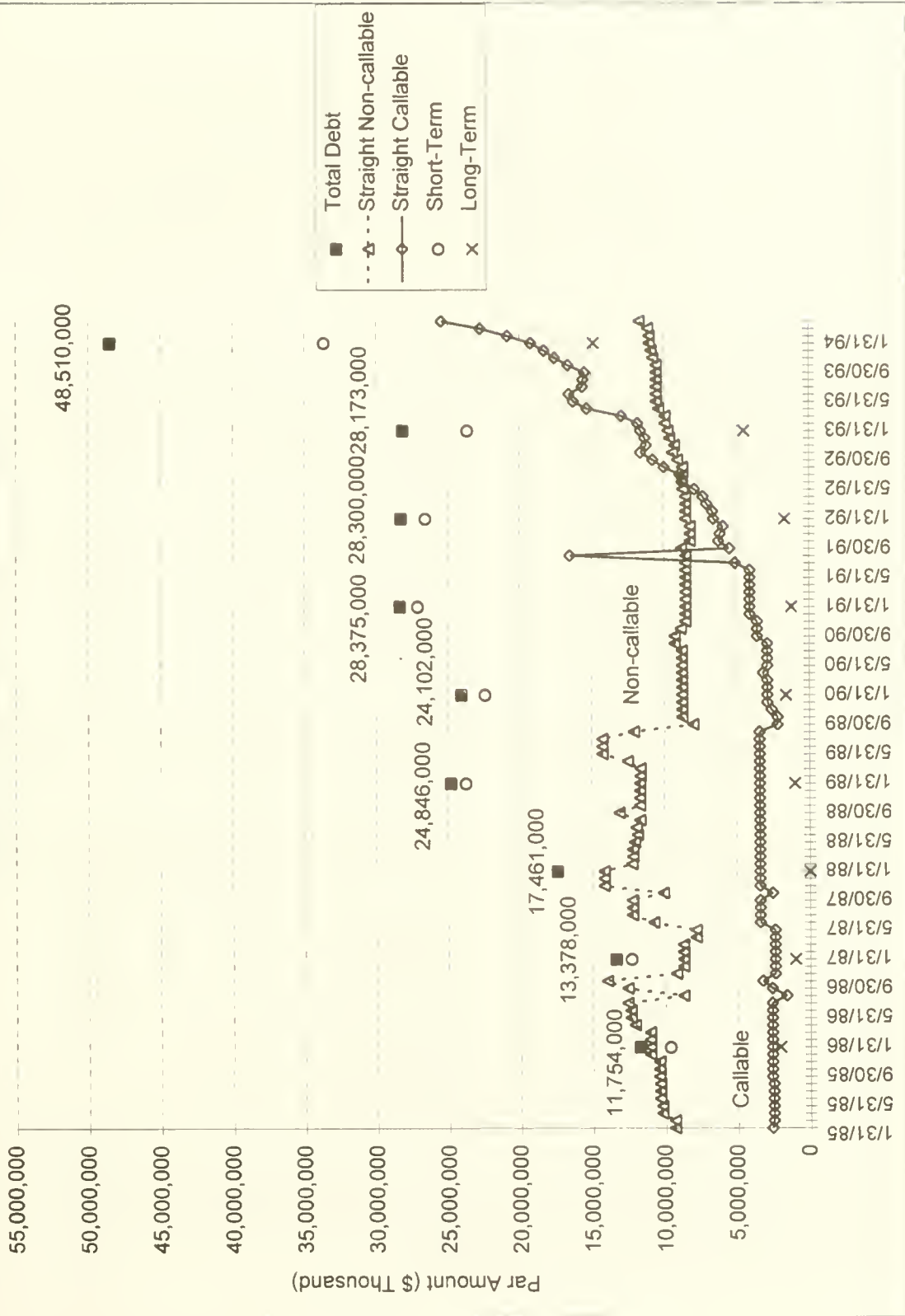
<sup>5</sup> Our estimate picks up pricing on MTNs in March 1992. There were a small number of MTN issues by Fannie Mae before 1991.

**FIGURE 2**  
**Fannie Mae Medium-Term Notes Outstanding**





**FIGURE 3**  
**Freddie Mac Straight Debt Outstanding**



## B. Data and Methodology

Portfolios of bonds (Fannie Mae/Freddie Mac, which we designate the “Agency Portfolio”; ‘AAA,’ ‘AA,’ and ‘A’ Corporate; ‘AAA,’ ‘AA,’ and ‘A’ Banking and Finance Industry; Government; and GE) were created by first screening out all bonds issued prior to January 1, 1985. This was necessary because of the change in operations of Fannie Mae and Freddie Mac in the late 1980s. The impact of the call option on pricing fixed-income securities requires distinguishing callable from non-callable bonds. Thus, two portfolios for each group were created by controlling for bond callability. In addition, all bonds with put features were excluded from the study, and only yields and returns based on trader quotes were used, avoiding the biases associated with matrix prices.

To control for common factors affecting the pricing characteristics of the bonds, portfolios were formed by controlling for age, maturity, and coupon. Unfortunately, due to the limited number of Agency bonds available for inclusion in the study, the portfolio screens were necessarily limited. To control for issue age, the bonds were divided into two groups: those issued for 12 months or less and those outstanding for more than 12 months. This screen effectively controls for bonds that are “on-the-run” or newly issued as opposed to seasoned bonds.

The second control factor is maturity. For each month bonds were divided into six categories depending on the length of time to maturity. The category ranges are 13–24 months, 25–36 months, 37–48 months, 49–60 months, 61–84 months, and greater than 84 months. Any bond with less than 12 months to maturity was not included in the bond database.

The final control is for differences in coupons across the bonds. For this control we divide the bonds into groups depending on whether the bond is selling at a premium or discount (premium bonds are defined as any bond with a coupon greater than the bond’s yield to maturity).

After controlling for each of these factors, differences in yield and return are calculated. For each rating group, we begin by defining the monthly mean yield and return for each portfolio category as

$$\bar{Y}_{ij} = \frac{1}{n} \sum_{l=1}^n Y_{ij,l}$$

and

$$\bar{R}_{ij} = \frac{1}{n} \sum_{l=1}^n R_{ij,l}$$

where  $R_{ij,l}$  and  $Y_{ij,l}$  represent the return and yield on bond  $l$  in portfolio  $j$  in month  $i$ , and  $n$  is the number of bonds in the portfolio category. Again, portfolio categories represent bonds matched by maturity, coupon, age, and rating. Monthly differences in the mean yields and returns between each rating group and Agency bonds are calculated as

$$XY_{ij} = \bar{Y}_{ij} - \bar{Y}_{ijAgency}$$

and

$$XR_{ij} = \bar{R}_{ij} - \bar{R}_{ijAgency}$$

where  $XR_{ij}$  and  $XY_{ij}$  are the differences in mean returns and yields for portfolio category  $j$  at month  $i$ . Next, the mean differences in yields and returns for each month are calculated as

$$\overline{XY}_i = \frac{1}{m} \sum_{j=1}^m XY_{ij}$$

and

$$\overline{XR}_i = \frac{1}{m} \sum_{j=1}^m XR_{ij}$$

where  $\overline{XR}_i$  and  $\overline{XY}_i$  represent the mean differences in returns and yields and  $m$  represents the number of portfolios in month  $i$ . Finally, the overall mean differences in yields and returns are calculated as

$$\overline{\overline{XY}} = \frac{1}{T} \sum_{i=1}^T \overline{XY}_i$$

and

$$\overline{\overline{XR}} = \frac{1}{T} \sum_{i=1}^T \overline{XR}_i$$

where  $T$  is the number of months in the time series. For example, the mean yield and return in each month for Agency bonds outstanding for more than 12 months, with between 13 and 24 months remaining to maturity, and selling at a discount are subtracted from the mean yield and return on 'AA' bonds with the same characteristics. This creates a time series of differences in yields and returns that controls (as much as possible) for liquidity, tax, and coupon effects. Next, each month the means of the differences in yield and return are calculated from the differences in yield and return for each matched portfolio. Finally, the overall mean differences are found from the time series of monthly mean yield differences. These mean differences provide a useful way of forecasting the expected changes in market perceptions of the GSEs if privatized. Using these projections will enable us to estimate the impact of privatization on GSE capital costs.

**TABLE 1**

**Mean Differences in Yield and Return\*  
Between Fannie Mae and Freddie Mac Bonds  
and Finance Industry Bonds**

		1985-1994		1991-1994		1985-1990	
		Yield	Return	Yield	Return	Yield	Return
Callable Finance 'AAA' - Agency	Mean	0.656	-0.506	1.007	0.162	0.393	-1.007
	Std Dev		9.277		8.406		9.992
	t-stat		-0.521		0.120		-0.727
Callable Finance 'AA' - Agency	Mean	0.630	0.387	1.046	1.817	0.319	-0.685
	Std Dev		6.353		4.043		7.474
	t-stat		0.581		2.807		-0.661
Callable Finance 'A' - Agency	Mean	0.608	1.527	0.800	1.668	0.463	1.421
	Std Dev		13.562		5.098		17.470
	t-stat		1.074		2.043		0.587
Non-callable Finance 'AAA' - Agency	Mean	0.551	0.836	0.852	0.228	0.382	1.180
	Std Dev		14.867		3.912		18.411
	t-stat		0.585		0.364		0.532
Non-callable Finance 'AA' - Agency	Mean	0.372	0.144	0.460	1.026	0.322	-0.354
	Std Dev		6.410		2.249		7.823
	t-stat		0.234		2.849		-0.376
Non-callable Finance 'A' - Agency	Mean	0.563	0.979	0.720	1.859	0.474	0.482
	Std Dev		9.981		3.094		12.282
	t-stat		1.019		3.753		0.326

\* Mean returns are annualized by multiplying mean monthly figures by 12.



## C. Results

### *(1) Agency Versus Finance*

In Tables 1–3 we report the mean differences in yield and return between portfolios of firms listed in the FIRP<sup>11</sup> database as belonging to the Banking and Finance Industry and the Agency portfolio.<sup>12</sup> Because the GSEs are actively engaged in the mortgage markets, it seems reasonable to expect that their securities would exhibit characteristics similar to other firms in the Finance Industry. We calculate the mean differences for portfolios of callable and non-callable bonds. We also categorize the firms by their rating classification assuming that Fannie Mae and Freddie Mac would retain at least an ‘A’ rating as private firms. Given the recent shifts in financing activities by Fannie Mae and Freddie Mac, we break the sample period (March 1985 to March 1994) into two subperiods (March 1985 to December 1990 and January 1991 to March 1994) which roughly correspond to the timing of the shifts. Results for the entire period and the two subperiods are reported. Because this study forecasts expected changes in the market’s valuation of Fannie Mae and Freddie Mac after privatization, we focus on the most recent period (1991–94) as being the most reflective of the current financial position of the GSEs relative to other firms. We will see that during this period Agency debt had substantially greater return differences than the other bonds to which we compare them. The reader should think of the resulting measures of increased debt costs to the GSEs based on the figures in the 1991–94 period as an upper limit. In Section III we will explore an alternative to measuring the cost of capital changes to the GSEs based on data from earlier periods.

As a note of caution, care should be exercised while examining the results of this section due to the limited number of Finance Industry bonds available for comparison with the Agency bonds. In particular, the number of ‘AAA’ Finance Industry bonds may be sufficiently small to lead to improper inferences. The appendix provides a list of the numbers of observations available to us each month for all of the yield and return differences reported in Table 3.

The tables report the mean differences in yield and return, the standard deviation in the differences in return, and the t-statistic testing whether the mean difference for returns is significantly different from zero.<sup>13</sup> Because of the serial correlation present in the yield spread time series, similar standard deviations and t-tests for differences in the mean yields are not valid. Thus, we only report the difference in mean yield and do not discuss its significance level.

Table 1 reports the results comparing the Agency portfolios with the Banking and Finance Industry portfolios. For the 1991–94 sample period, the returns for callable and non-callable ‘AA’ and ‘A’ Finance Industry bonds are significantly greater than the returns on Agency bonds. For

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<sup>11</sup> Fixed Income Research Program (FIRP) of the University of Wisconsin-Milwaukee School of Business Administration.

<sup>12</sup> Although the Agency portfolio contains both Fannie Mae and Freddie Mac bonds, the majority of the observations are Fannie Mae issues.

<sup>13</sup> Again, the yield is the implied annual rate of return on a bond if held to maturity and the return is the percentage change in value over the 1-month holding period.

**TABLE 2**

**Mean Differences in Yield and Return\*  
Between Fannie Mae and Freddie Mac Bonds  
and Corporate Bonds**

		1985-1994		1991-1994		1985-1990	
		Yield	Return	Yield	Return	Yield	Return
Callable Corporate 'AAA' - Agency	Mean	0.669	0.465	1.059	1.846	0.384	-0.543
	Std Dev		6.187		4.156		7.221
	t-stat		0.713		2.738		-0.543
Callable Corporate 'AA' - Agency	Mean	0.608	0.521	0.812	1.427	0.456	-0.158
	Std Dev		6.303		4.287		7.367
	t-stat		0.789		2.078		-0.154
Callable Corporate 'A' - Agency	Mean	0.731	0.893	0.854	1.864	0.638	0.165
	Std Dev		6.380		4.522		7.435
	t-stat		1.335		2.574		0.160
Non-callable Corporate 'AAA' - Agency	Mean	0.308	0.119	0.126	0.360	0.412	-0.017
	Std Dev		7.941		4.521		9.375
	t-stat		0.156		0.497		-0.015
Non-callable Corporate 'AA' - Agency	Mean	0.378	0.653	0.392	1.484	0.370	0.184
	Std Dev		6.239		2.481		7.559
	t-stat		1.088		3.735		0.202
Non-callable Corporate 'A' - Agency	Mean	0.552	0.807	0.649	2.094	0.497	0.079
	Std Dev		7.581		2.935		9.171
	t-stat		1.106		4.456		0.072

\* Mean returns are annualized by multiplying mean monthly figures by 12.

callable 'AA' and 'A' bonds, the returns are 1.82%<sup>14</sup> and 1.67% higher respectively than the Agency bonds. Non-callable 'AA' and 'A' Finance Industry bond returns are 1.03% and 1.86% higher than Agency bonds. The results also indicate that the differences in returns between 'AAA' Finance Industry bonds and Agency issues are not significantly different from zero.<sup>15</sup>

As expected, the Agency bonds have lower yields relative to the Finance Industry bonds, suggesting that the market does place a premium on Agency securities relative to Finance Industry securities. For the 1991–94 subperiod, the results indicate that the yield on 'AAA' non-callable bonds was 0.85% higher than Agency bonds. For 'AA' non-callables, the yield is 0.46% higher and for 'A' non-callables, the yield is 0.72 % higher than Agency bonds. Caution should be exercised when interpreting the results for 'AAA' non-callable bonds. The counterintuitive result that 'AAA' non-callable bonds have yields higher than 'AA' non-callable bonds relative to Agency bonds may be due to the small number of 'AAA' non-callable bonds available for study. Thus, the higher yield spread may reflect liquidity differences between 'AAA' non-callable bonds and Agency bonds that the data did not permit us to adequately adjust for. However, the results indicate that Fannie Mae and Freddie Mac securities command a premium in the market that would most likely disappear after privatization. The results for the callable bonds lead to similar conclusions.

## *(2) Agency Versus Corporate*

In Table 2 we report the mean differences in yield and return between corporate bonds and Agency bonds. Using corporate bonds for comparisons provides a larger sample of bonds to compare against Agency bonds. In addition, corporate bond issues tend to be larger relative to Finance Industry issues, thus lessening the impact of liquidity differences on the analysis. As with the Finance Industry bonds, we divide the sample into portfolios by rating classification and call feature. During the 1991–94 period, both callable and non-callable 'AA' and 'A' as well as callable 'AAA' corporate bonds experienced significantly greater returns than comparable Agency bonds. As expected, single-'A' corporate bonds had the greatest return spread over the Agency bonds at 1.86% and 2.1% for callable and non-callable respectively. Triple-'A' rated non-callable corporate bonds were the only category to have insignificantly different returns compared to Agency bonds between 1991 and 1994.

For the differences in yield, the results indicate that non-callable Agency bonds have yields 0.13%, 0.39%, and 0.65% lower than non-callable 'AAA', 'AA', and 'A' corporate bonds. These results are consistent with our expectations concerning increasing yield spreads for lower rated securities.

As an example of the impact of a privatized Fannie Mae or Freddie Mac falling to an 'A' rating, we demonstrate the impact that a 0.65% increase in yields would have on an 8% coupon

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<sup>14</sup> All return differences are reported on an annualized basis by taking the monthly mean return differences and multiplying by 12.

<sup>15</sup> Again, care should be exercised while interpreting the results for the 'AAA' sample because of the limited number of bonds.

**TABLE 3**

**Mean Differences in Yield and Return\*  
Between Fannie Mae and Freddie Mac Bonds  
and Government Bonds and General Electric Bonds**

		1985-1994		1991-1994		1985-1990	
		Yield	Return	Yield	Return	Yield	Return
Government - Agency	Mean	-0.284	0.592	-0.147	0.068	-0.361	0.888
	Std Dev		9.554		2.709		11.802
	t-stat		0.644		0.157		0.625
Callable GE - Agency	Mean	0.617	-1.009	1.027	-1.021	0.206	-0.997
	Std Dev		6.017		4.454		7.287
	t-stat		-1.481		-1.432		-0.855
Non-callable GE - Agency	Mean	0.338	0.262	0.266	0.860	0.403	-0.281
	Std Dev		3.103		2.352		3.613
	t-stat		0.764		2.284		-0.510

\* Mean returns are annualized by multiplying mean monthly figures by 12.

Agency bond with 5 years to maturity currently selling at par (8% market interest rates). The yield to maturity for the 8% coupon Agency bond would increase to 8.65% if the GSE is rated 'A.' This implies that with market interest rates remaining constant at 8%, the price for the 8% coupon Agency bond would fall from the \$100 par value to \$97.41 (a 2.59% price drop).

The results for the differences in yield on the callable bonds do not conform to prior expectations. The results show that 'AAA' corporates have yields 1.06% higher than Agency bonds while 'AA' yields are only 0.81% higher. As with the Finance Industry bonds, we suspect that this is due to the limited data available for callable bonds as well as to differences in call features. Because we were unable to control for differences in call dates between matched pairs of callable bonds, the possibility exists that the effective maturities are very different in the matched pairs.

**(3) Agency Versus General Electric**

Finally, in Table 3 we report the mean differences in yield and return between Government and General Electric bonds and Agency bonds. We chose to compare the Agency bonds to General Electric because of the presence of General Electric Capital in the secondary mortgage market. GE Capital as a private firm directly competes with the GSEs in certain mortgage operations; thus it seems appropriate to compare the GSEs to one of their primary private competitors. In addition, GE



bonds are 'AAA'-rated. Interestingly, the only significant difference in returns (0.860%) occurs for non-callable GE bonds compared to Agency bonds during the 1991–94 period. As with the Finance and corporate portfolios, GE bonds have higher yields than comparable Agency bonds. The results for the 1991–94 period indicate that non-callable Fannie Mae/Freddie Mac bonds enjoy a 0.27% advantage over similar GE bonds while callable Fannie Mae/Freddie Mac bonds enjoy a 1.03% advantage.

#### **(4) Agency Versus Government**

To provide a relative comparison, we also calculated the mean differences in yield and return between portfolios of Government and Agency bonds (Table 3). These calculations show the differences in pricing between Agency bonds and Government bonds. As expected, Government bonds have lower yields relative to Agency bonds. The results indicate that Agency bonds had yields 0.15% higher than similar Government bonds during the 1991–94 period. Relative to the 1985–90 period, the results indicate that the yield spread between Government and Agency bonds has narrowed. However, the differences in returns are not significantly different from zero.

#### **D. Conclusions**

Overall, the surprising result is that Agency bond portfolio returns were not significantly different from 'AAA'-rated bonds (either corporate or Finance). This may imply that if the GSEs receive a 'AAA' rating after privatization, they may not experience any significant increase in the returns to their securities. However, caution should be exercised when making comparisons to the 'AAA'-rated portfolios due to the limited number of 'AAA' firms included in the portfolios. The results also indicate that Fannie Mae and Freddie Mac bonds currently enjoy a yield advantage relative to corporate or Finance bonds. The most trustworthy results are for 'AA' and 'A' non-callable issues (corporate or Finance) where effective maturities are properly matched and where the number of underlying bonds is high. These results indicate that the Fannie Mae or Freddie Mac moving to 'AA' or 'A' status would result in their needing to increase returns to bondholders by 1% to 2% per annum, respectively.

To put these results into perspective, we calculate the implied change to Fannie Mae and Freddie Mac return on equity. Holding all else constant, a 1% to 2% increase in the costs of debt would suggest that Fannie Mae would experience an increase of \$1.37 billion to \$2.75 billion in new after-tax interest costs.<sup>16</sup> Based on Fannie Mae's 1993 income statement, this increased interest cost would reduce Fannie Mae's net income to between 27% of the original value (assuming a 1% increase in new debt cost) and a net loss (assuming a 2% increase in new debt cost).<sup>17</sup> Thus, based on these calculations, Fannie Mae's current 23.3% return on equity (ROE) could fall to between 6% (assuming a 1% increase in new debt cost) and a negative figure (assuming a 2% increase in new

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<sup>16</sup> This represents 1% to 2% of the \$208 billion of Fannie Mae debt outstanding at the end of 1993. With a marginal tax rate of 34%, this implies increased after-tax costs of  $66\% \times \{1\% \text{ to } 2\%\} \times \$208 \text{ billion}$ .

<sup>17</sup> 1993 net income equals \$1.873 billion. So  $(1.873 - 1.37) \div 1.873 = 0.27$ .

**TABLE 4**

**Firms Included in WACC Comparison Portfolio**

	<b>OBS</b>	<b>CUSIP</b>	<b>NAME</b>	<b>SIC</b>	<b>IC</b>
	1	008140	AETNA LIFE & CASUALTY	63	7
	2	026351	AMER. GENERAL CORP.	63	7
	3	026874	AMER. INT'L GROUP	67	7
	4	032165	AMSOUTH BANCORP.	67	7
	5	059029	BALTIMORE BANCORP	60	7
	6	059438	BANC ONE CORP.	67	7
	7	060716	BANK OF BOSTON	67	7
	8	066050	BANKAMERICA CORP.	67	7
	9	066365	BANKERS TRUST NY	60	7
	10	068055	BARNETT BANKS INC.	67	7
	11	073902	BEAR STEARNS	62	7
	12	081721	BENEFICIAL CORP.	67	7
	13	095173	BLOUNT, INC. 'A'	67	3
	14	124800	CBI INDS.	67	3
	15	126117	CNA FIN'L	63	7
	16	140186	CAPITAL HOLDING CORP.	63	7
	17	161610	CHASE MANHATTAN	60	7
	18	173034	CITICORP	67	7
	19	294432	EQUIMARK CORP.	60	7
	20	307351	FARWEST FIN'L	63	7
	21	319279	FIRST BANK SYSTEM	67	7
	22	319455	FIRST CHICAGO	60	7
	23	320548	FIRST INTERSTATE BANK	60	7
	24	337477	FIRST VA. BANKS	60	7
	25	361582	GEICO CORP.	67	7
	26	370563	GEN'L RE CORP.	63	7
	27	400181	GRUMMAN	67	3
	28	449264	ICH CORP	67	7
	29	488396	KEMPER CORP.	63	7
	30	493263	KEYCORP	67	7
	31	515051	LANDMARK BANCSHARES	60	7
	32	534187	LINCOLN NAT'L CORP.	63	7
	33	55267	MCORP	60	7
	34	585509	MELLON BANK CORP.	67	7
	35	590188	MERRILL LYNCH & CO.	62	7
	36	62945T	NWNL COS.	63	7
	37	635405	NATIONAL CITY CORP.	67	7
	38	669380	NORWEST CORP.	67	7
	39	680223	OLD REPUBLIC INTL	63	7
	40	695629	PAINWEBBER GROUP	67	7
	41	743315	PROGRESSIVE (OHIO)	63	7
	42	760719	REPUBLIC N.Y.	67	7
	43	814823	SECURITY PACIFIC	67	7
	44	867914	SUNTRUST BANKS	67	7
	45	891027	TORCHMARK CORP.	63	7
	46	894180	TRAVELERS CORP.	63	7
	47	917318	USLIFE CORP.	67	7
	48	949740	WELLS FARGO & CO.	60	7

Note: SIC refers to two-digit SIC code. IC refers to independent financial industry classification. The median rating for the debt of the companies in our comparison portfolio is 'A1' (highest single-'A'—Standard and Poor's), with a range of 'AAA' to 'B.'

debt cost).<sup>18</sup> For Freddie Mac the results are similar. Assuming that the 1% to 2% increase in debt costs translates into new before-tax interest costs of approximately \$500 million to \$1 billion, Freddie Mac would experience a reduction in after-tax net income of between \$330 million dollars and \$660 million.<sup>19</sup> Thus, Freddie Mac could potentially experience a reduction in its 18% ROE (year-end) to between 10% and 2.8%.<sup>20</sup>

### III. THE COST OF CAPITAL

#### A. Introduction

This section compares the current cost of capital (weighted average of equity and after-tax debt cost) for Fannie Mae to that enjoyed by other firms in the Banking and Finance Industry. Using the cost of capital for Banking and Finance companies, we provide estimates of the increased cost of capital assuming that the GSE's will resemble a portfolio of their potential competitors. We have assembled a unique database of financial accounting data, bond data, and equity prices that permits us to calculate market-based capital structure (ratio of a company's debt to equity) and weighted average cost of capital.

#### B. Methodology

Our work on the weighted average cost of capital (WACC) for Fannie Mae and Freddie Mac is based on an analysis of the WACC for Fannie Mae and for a portfolio of Banking and Finance companies.<sup>21</sup> Table 4 lists the firms included in our comparison portfolio. The median rating for the debt of the companies in the Banking and Finance portfolio is 'A1' (highest single-'A'—Standard and Poor's), with a range of 'AAA' to 'B.' Data limitations restrict our sample period to March 1985 through December 1991.

The weighted average cost of capital is formally defined as

$$R_A = \frac{D}{(D+E)}R_D + \frac{E}{(D+E)}R_E$$

where:

$R_A$  = return to total assets "A" (we refer to as WACC, or weighted average cost of capital),

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<sup>18</sup> 1993 book equity equals \$8.371 billion, so  $(1.873 - 1.37) \div 8.371 = 0.06$ .

<sup>19</sup> The Freddie Mac new interest costs represent 1% to 2% of Freddie Mac debt outstanding at the end of 1993. We are again employing a 34% marginal tax bracket.

<sup>20</sup> 1993 net income is \$786 million and book equity is \$4.437 billion, so for example  $(786 - 330) \div 4437 = 0.10$ .

<sup>21</sup> Construction of weighted average cost of capital follows the methods in Sweeney, Warga, and Winters (1994). We were unable to assemble the necessary data to produce an independent analysis of Freddie Mac's weighted average cost of capital.

**TABLE 5****Mean Monthly Returns for Fannie Mae, Banking and Finance Portfolio (B&F) and General Index (IDX)****March 1985–December 1991**

Variable	Mean	S.D.	Maximum	Minimum
WACCIDX	0.0112623	0.0364903	0.1042209	-0.1722759
WACC B&F	0.0066732	0.0168418	0.0413830	-0.0591630
FNMAWACC	0.0087853	0.0093197	0.0288396	-0.0156702
STOCK IDX	0.0115042	0.0550589	0.1469876	-0.2604289
STOCK B&F	0.0099770	0.0686252	0.1868800	-0.2355500
FNMASTOCK	0.0383821	0.1100279	0.2865000	-0.2214200
BOND B&F	0.0097697	0.0142568	0.0486570	-0.0280220
FNMA BOND	0.0089240	0.0102888	0.0344900	-0.0173400

**Excluding Crash Months (October 1987, October 1989)**

Variable	Mean	S.D.	Maximum	Minimum
WACCIDX	0.0140481	0.0301897	0.1042209	-0.0588722
WACC B&F	0.0075567	0.0153256	0.0413830	-0.0245560
FNMAWACC	0.0086626	0.0094033	0.0288396	-0.0156702
STOCK IDX	0.0157592	0.0457660	0.1469876	-0.0948157
STOCK B&F	0.0141499	0.0628428	0.1868800	-0.1427100
FNMASTOCK	0.0425895	0.1070778	0.2865000	-0.2189500
BOND B&F	0.0095126	0.0143293	0.0486570	-0.0280220
FNMA BOND	0.0085705	0.0101575	0.0344900	-0.0173400

**January 1990–December 1991**

Variable	Mean	S.D.	Maximum	Minimum
WACCIDX	0.0079203	0.0324444	0.0622219	-0.0588722
WACC B&F	0.0074873	0.0178296	0.0413830	-0.0235400
FNMAWACC	0.0096764	0.0103934	0.0288396	-0.0156702
STOCK IDX	0.0062364	0.0529432	0.0829659	-0.0948157
STOCK B&F	0.0123325	0.0882654	0.1868800	-0.1427100
FNMASTOCK	0.0371763	0.1050583	0.2321400	-0.2189500
BOND B&F	0.0115181	0.0180149	0.0486570	-0.0168990
FNMA BOND	0.0091967	0.0080341	0.0222900	-0.0073900



$R_D$  = return to total debt “D” (weighted average of long- and short-term debt),

$R_E$  = return to equity “E.”

The weighted average cost of capital ( $R_A$ ) represents the return to an investor who has a weighted investment in, for example, Fannie Mae where the weights are proportional each month to the actual sources of capitalization. This is not an *after-tax* cost of capital which would be reflective of Fannie Mae’s cost. That would require a tax rate adjustment to the cost of debt, and it is infeasible at this stage to calculate this figure for our portfolio of banking firms. Later, we will consider the tax impact to Fannie Mae and Freddie Mac.

To determine the riskiness of these returns, we calculate a measure of relative risk using a one-factor market model of the form

$$R_{i,t} = \alpha + \beta * R_{M,t} + \epsilon_{i,t}$$

where  $R_{i,t}$  is the return on portfolio in month  $t$  and  $R_{M,t}$  is the return on the market portfolio in month  $t$ . We define the market index as either an equally weighted average of 15 industry equity portfolios or alternatively an equally weighted average of the same 15 industries’ weighted average cost of capital. Using the market index made up of industry WACCs is the theoretically more attractive modelling approach because it includes debt. Debt is a risky investment that investors have in their portfolios, and all asset pricing models include this class of instruments in their universe of risky investments.  $\beta$  represents the relative riskiness of the portfolio  $R_{i,t}$  to the overall market return. In a Miller-Modigliani<sup>22</sup> framework, the WACC for a company can remain stationary in mean, while at the same time expected equity costs change in response to capital structure changes. Since the period in question involves changes in capital structure for both GSEs, we will place more emphasis on estimates of WACC than we do on estimates of the cost of equity capital. For our purposes this does not detract from the analysis since it is the total increase in financing costs (due to both debt and equity) that are of interest.

### C. Results

Table 5 reports the summary statistics for returns to debt, equity, and WACC for Fannie Mae and our comparison Banking and Finance portfolio (referred to as “B&F”). It is important to note that the WACC calculations assume that short-term debt has a return equal to 30-day Treasury bills. Because the Banking and Finance portfolio has the majority of its capitalization coming from short-term debt, there will be a downward bias in the mean WACC return for the B&F portfolio.<sup>23</sup> Fannie Mae also relies on short-term debt, but to a much lesser degree (averaging 30% of total debt over

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<sup>22</sup> Miller-Modigliani framework refers to a class of models where increased reliance on debt translates into increased risk (and therefore increased expected return) for equity. The models seek to explain the pure effects of capital structure changes and hence assume that the investment policy of a firm is independent of the financing policy.

<sup>23</sup> Debt accounted for about 75% of total capitalization over the period 1985–91 for the B&F portfolio. Long-term debt only accounted on average for 14% of total capitalization, and short-term debt 61% over this period.

TABLE 6

## Risk Measures

	Stock Market Index		WACC Market Index		
	Stock $\beta$	Bond $\beta$	Stock $\beta$	Bond $\beta$	WACC $\beta$
<b>1985–1991<sup>1</sup></b>					
Fannie Mae	1.44	0.096	2.22	0.171	0.196
Banking & Finance	1.18	0.180	1.75	0.298	0.441
<b>1990–1991</b>					
Fannie Mae	1.65	0.084	2.71	0.152	0.265
Banking & Finance	1.58	0.262	2.49	0.450	0.518

<sup>1</sup> Excludes crash months of October 1987 and October 1989. Results do not change substantively when crash months included. Bond betas are for long-term debt only.

the 1985–91 period). The BOND returns (e.g., FNMABOND, BOND B&F) are long-term returns based on actual long-term instruments of the companies. Details on the construction of the long-term bond returns for our firms are provided in Sweeney, Warga, and Winters (1994).

Any bias present from the use of short-term debt will have no effect on calculations of stock or long-term debt risk factors (“beta” from the Capital Asset Pricing Model). It is also unlikely that the WACC time series will have its estimated betas influenced by the use of 30-day Treasury bill returns for short-term debt because of the extremely high correlation between bank cost of funds and Treasury instruments. Any bias that is present will be in the direction of making the B&F debt and WACC beta smaller than it would otherwise be. As will be seen below, this will result in conservative estimates of B&F betas.

Table 6 reports measures of relative risk for Fannie Mae and our portfolio of bank and finance companies (B&F). By all measures of  $\beta$ , it is apparent that Fannie Mae’s stock is marginally riskier than that of our B&F stock portfolio, and its debt is significantly less risky. The higher riskiness of Fannie Mae stock (relative to B&F stock) is possibly due to Fannie Mae’s higher leverage position. This highlights why we ultimately make no direct comparisons between Fannie Mae stock betas and B&F stock betas. The WACC for Fannie Mae has a beta that is about half that of B&F firms.<sup>24</sup> It is clear that the high sample mean returns reported in Table 6 for Fannie Mae cannot be explained as having realizations close to their expectations (at least in a Capital Asset Pricing Model setting). WACC beta for Fannie Mae is less than B&F WACC beta and yet Fannie

<sup>24</sup> Unlike equity betas that are a joint function of the underlying business and the capital structure, the WACC betas of two companies may be directly compared. WACC capital structure effects are minimal (if present at all) relative to the equity case.

Mae WACC mean returns are significantly greater. There is a similar story to tell for Fannie Mae stock, whose mean returns are about three times higher than B&F's, but whose beta is only marginally larger. Fannie Mae has experienced an extraordinarily "good run" in the parlance of investors.<sup>25</sup>

We can use the WACC betas to infer what total cost of capital changes would be to Fannie Mae if it turned into a company typified by our B&F portfolio. For this purpose we will employ a WACC market premium of 6%, which is based on the historical stock market premium of 8.4% and historical corporate bond premium of 1.7%, with a weight of 65% on the stock market and 35% on the corporate debt.<sup>26</sup>

If Fannie Mae becomes more like our B&F firms in a privatization, then we can infer what the increase in cost of capital will be based on the WACC betas calculated above. The increase in WACC implied by the WACC betas in Table 6 above are 1.47% (1985–91) and 1.52% (1990–91).<sup>27</sup> These figures represent the increased return investors will expect for purchasing Fannie Mae debt and equity in the proper proportions to fund its operations. With a total capital base exceeding \$240 billion (based on recent stock price), Fannie Mae will face extra costs of about \$3.6 billion per year.<sup>28</sup> This added cost will be split with the U.S. Government, in the sense that the part relating to interest expense is tax-deductible.

This result suggests that if Fannie Mae were privatized and had an 'A' credit rating, its capital costs would increase from their current levels by \$3.6 billion, holding the size and composition of its business constant. Most of this \$3.6 billion consists of higher interest expenses on bonds. These expenses are tax-deductible. The rest is the increased cost of equity, including the effects of leverage changes. Compared to 1993 earnings, this would increase interest expenses and substantially reduce Fannie Mae ROE (see Section II above for specific examples of the reduction in ROE due to increased debt expenses). Obviously, this reduction in ROE could be offset by an increase in fees to lenders, which would result in a corresponding increase in mortgage interest rates.

The actual change in capital costs to Fannie Mae will be a function of the tax rate Fannie Mae faces. Using the 1993 tax rate experienced by Fannie Mae of 32%, the cost of capital to Fannie Mae will be given by the formula

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<sup>25</sup> See "Market Power and the Pricing of Mortgage Securitization," by John L. Goodman and S. Wayne Passmore. Finance and Economics Discussion Series, Federal Reserve Board, March 1992, No.187. These authors find similar results for the relation between risk and return for Fannie Mae stock.

<sup>26</sup> Historical premiums are for the period 1926–1988. Equity and debt percentages are averages over 1985–91. Premiums are measured as the return in excess of the 30-day T-bill rate ( $0.06 = (0.65 \times 0.084) + (0.35 \times 0.017)$ ).

<sup>27</sup> The increases in WACC are calculated by multiplying the difference in WACC betas from Table 6 by the 6% WACC market premium calculated above ( $((0.441 - 0.196) \times 0.06 = 0.0147$ , and  $(0.518 - 0.265) \times 0.06 = 0.0152$ ).

<sup>28</sup> Capitalizing this \$3.6 billion per year increase in the cost of capital at (say) 10% would imply the present value of Fannie Mae's GSE status of \$36 billion (when valued as a perpetuity). We discuss the implications of such calculations below.

$$R_{A,aftertax} = \frac{D}{(D+E)}R_D(1-t) + \frac{E}{(D+E)}R_E$$

where  $t = 0.32$ .

The change in the cost of debt to Fannie Mae implied by our assumptions above (and the betas in Table 6) is best measured by avoiding direct measurement of the cost of equity. The reason for this is that the equity betas will be more sensitive than either the WACC or bond betas to changes in capital structure, which we know are important for Fannie Mae. In a simple Modigliani-Miller framework, the equity beta will be directly proportional to the ratio of total assets to equity. While this form of the model assumes riskless debt, the model is not changed dramatically when low levels of debt risk are admitted. Accurate estimation of cost of equity capital in any event is a difficult task because of the large volatility of equity relative to debt and (in our case) WACC.<sup>29</sup>

Recent market values of the ratio of debt to total capitalization for Fannie Mae are about 90%. Assuming that 90% of the \$3.6 billion in added financing to Fannie Mae comes from interest payments, the after-tax increase in cost of capital to Fannie Mae will translate to \$2.56 billion.<sup>30</sup> Since the cost of debt is less than the cost of equity, we know that 90% is the upper bound for the contribution debt plays in accounting for the overall increase in pre-tax capital costs of \$3.6 billion. If debt accounted for 80% of the increased pre-tax costs to Fannie Mae, then the after-tax increase would rise from \$2.56 billion to \$2.68 billion; if debt accounted for 70%, then the result would be \$2.79 billion; and finally (an extreme estimate) if debt accounted for 60%, then the increase would be \$2.91 billion.

We may infer the increased costs to Freddie Mac by employing the change in WACC estimated for Fannie Mae and Freddie Mac's actual capital structure. Recent market-based capital structure for Freddie Mac is about 13% equity and 87% debt. Before-tax changes in cost of capital for Freddie Mac will be (using the 1.5% increase from the overall Fannie Mae WACC estimates) about \$1.275 billion per year. The after-tax figure corresponding to this estimate will be \$920 million per year.<sup>31</sup> As before, this ignores the fact that the cost of debt is less than the cost of equity. If debt accounted for 80% of the increased pre-tax costs to Freddie Mac, then the after-tax increase would rise to \$949 million; if debt accounted for 70%, then the result would be \$989 million; and finally if debt accounted for 60%, then the increase would be \$1.03 billion.

It is important at this point to employ our work in Section II of this study to get a reality check on the estimated increase in cost of capital for the GSEs provided above. The reader may recall that single-'A' debt had returns that were upwards of 2% greater than GSE debt, and 'AA'

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<sup>29</sup> As seen in Table 5 above, the volatility of Fannie Mae stock is 10 times that of Fannie Mae WACC when measuring volatility with standard deviation of returns.

<sup>30</sup>  $(0.9 \times 3.6 \text{ billion} \times (1 - 0.32)) + (0.1 \times 3.6 \text{ billion})$ .

<sup>31</sup>  $(0.87 \times 1.275 \text{ billion} \times (1 - 0.32)) + (0.13 \times 1.275 \text{ billion})$ .



debt had returns that were about 1% greater, based on comparisons with Finance companies and corporate issues in general over the 1991–94 period. Since debt is the dominant factor in GSE cost of capital, we see that the figure provided here of about a 1.5% increase in WACC is very much in line with the increased debt costs estimated in Section II. Most of the calculations and data in Sections II and III are independent of each other, and this fact adds confidence to our estimates in both parts.

Importantly, the analysis in this section reveals that differences in risk measures (the betas) for the Banking and Finance portfolio versus Fannie Mae produce cost-of-capital estimates in line with our earlier use of bond returns from the 1991–94 period. Bond return differences of around 1% (for the GSEs versus ‘AA’ Finance) to 2% (for the GSEs versus ‘A’ Finance) are historically high. It was mentioned in Section II that our estimates should be viewed as upper limits, and the results here should provide some reassurance that we should pay attention to those earlier results.

#### IV. IMPACT ON MORTGAGE-BACKED SECURITIES

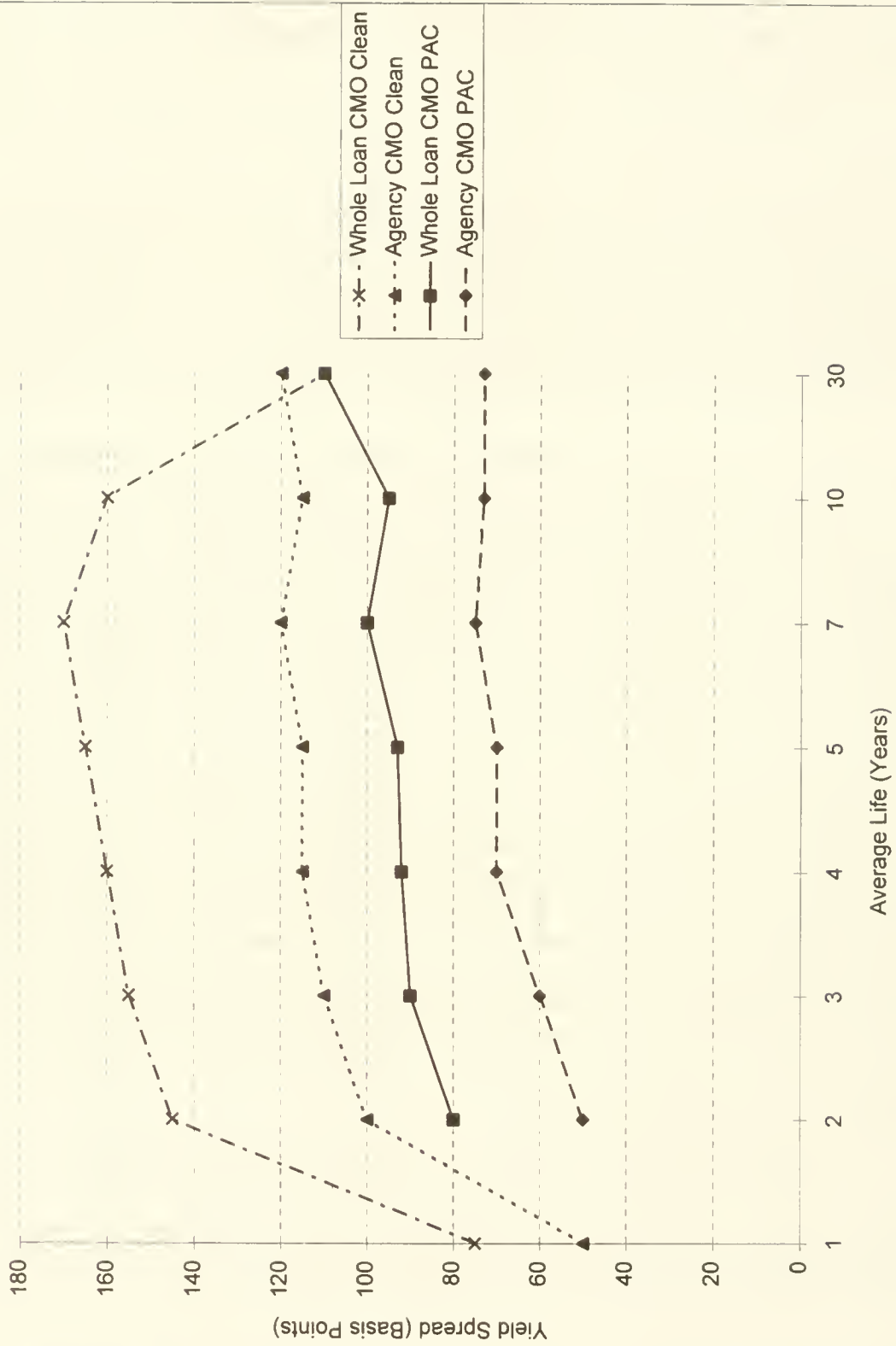
Mortgage-backed securities (MBSs) are a significant portion of the GSEs’ business. For example, as of July 1994, Fannie Mae had approximately \$515 billion in MBSs outstanding, and Freddie Mac had approximately \$489 billion MBSs outstanding.<sup>32</sup> Although GSE securities do not have an “explicit” federal guarantee, the GSEs guarantee the MBSs they issue. Thus, to the extent that the market views them as having an “implied” federal guarantee, this implicit guarantee will carry over to MBSs. If the implied federal guarantee disappears after privatization, then the value of Fannie Mae’s and Freddie Mac’s guarantees on their MBSs will be based on their underlying capitalization. To the extent that the market perceives that privatization has increased the riskiness of the GSEs’ capitalizations, then we could expect to see an increase in the risk premium associated with the GSEs’ MBSs. However, several factors make estimating the impact of privatization on the MBS market difficult. First, the size of GSE participation in this market implies that a substantial liquidity premium exists for non-GSE MBSs. Second, MBSs are highly structured debt instruments with several layers of credit enhancements and protections. These enhancements may greatly reduce the value of the GSEs’ relationship with the federal government to the investors. Third, MBSs issued by the GSEs receive preferential treatment for a wide variety of institutional and financial investors. For example, GSE MBSs receive lower risk-based capital rating requirements for banks than private MBSs. Thus the GSEs may face unanticipated changes in the demand for their MBSs if the preferences are eliminated after privatization. Finally, any difference in yields or returns may be attributable to differences in the individual securities.

Figure 4 displays recent (August 12, 1994) yield spreads for current-coupon Agency and nonagency Collateralized Mortgage Obligations (CMOs) (AAA Senior/Sub). The figure shows that the Agency PAC (i.e., Planned Amortization Class) CMOs have mean yield spreads approximately 27 basis points lower than nonagency PAC CMOs while Agency Clean CMOs enjoy a mean yield spread about 36.8 basis points lower than nonagency Clean CMOs. In addition, a study by the U.S.

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<sup>32</sup> *MBS and ABS Weekly Review*, August 8–August 12, 1994, Lehman Brothers Fixed Income Research.

**FIGURE 4**  
**Yield Spreads for Agency and Whole Loan CMOs**



General Accounting Office reported that the GSEs have an estimated cost advantage of between 2 and 4 basis points over private Real Estate Mortgage Investment Conduit (REMIC) issuers and can issue REMICs at yields between 10 and 20 basis points lower than private issues.<sup>33</sup> Unfortunately, we have no method of determining the reason for the differences in yield spreads.

As discussed above, the lower yield spread on Agency CMOs may be due to a variety of factors particular to the individual issues, such as the seasoning of the mortgage collateral, the CMO coupons, and the geographic distribution of the collateral, as well as any perceived benefit from the GSE's relationship with the federal government. Thus, the problem with analyzing the impact of eliminating this guarantee is that GSE MBSs are rated and priced according to the underlying collateral as well as the ability of the GSE to stand behind its guarantee. To the extent that the GSE MBSs are overcollateralized and that the underlying mortgages have private mortgage insurance, then the market's value of the implied federal guarantee may be minimal, suggesting that the effect of privatization on MBS operations would be limited.

However, an additional factor that makes up the guarantee associated with GSE MBSs is their relative capital structure. Holding all else constant, we showed in Section III that privatizing the GSEs would have a serious impact on their capital structure, and as a result it would be reasonable to expect the market to perceive an increase in risk associated with the GSEs' MBSs. However, the assumption that the GSEs would retain their current MBS/portfolio mix after privatization is unrealistic. One could assume that after privatization, the GSEs would alter their operations to reflect their new status and thus alter their capitalization accordingly. Thus, assuming that the GSEs increase their equity capital base, one could expect to see an increase in MBS rates.

## V. IMPACT ON MORTGAGE INTEREST RATES

In a recent paper, Cotterman and Pearce (1994) estimated that privatizing Fannie Mae and Freddie Mac would cause interest rates on fixed-rate conforming loans to rise by 20 to 35 basis points.<sup>34</sup> As of December 31, 1993, Fannie Mae held approximately \$189 billion of mortgages in portfolio and had approximately \$450 billion in outstanding MBSs. Thus, the 20- to 35-basis-point rise in interest rates would translate into between \$1.3 billion and \$2.2 billion in additional interest costs on the \$639 billion in mortgages held or securitized by Fannie Mae.<sup>35</sup> Freddie Mac held approximately \$55.7 billion of mortgages in portfolio and \$439 billion in MBSs at the end of 1993. Using the 20- to 35-basis-point increase of Cotterman-Pearce suggests that Freddie Mac would incur

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<sup>33</sup> "Agency Issuance of Real Estate Mortgage Investment Conduits," 1988, U.S. General Accounting Office.

<sup>34</sup> [In their final text (p. 102 in this volume), Cotterman and Pearce conclude that 25 to 40 basis points is the "core range of the conforming loan differential." The question of the potential effect of privatization on mortgage interest rates is discussed by Cotterman-Pearce on pp. 156-57 and by Hermalin-Jaffee on p. 299. —EDITOR.]

<sup>35</sup>  $(1.3 = 0.002 \times 639)$  and  $(2.2 = 0.0035 \times 639)$ .

between \$989 million and \$1.7 billion in additional interest costs on the \$494.7 billion in mortgages held or securitized.<sup>36</sup>

In Section II we calculated that Fannie Mae would experience between \$1.37 billion and \$2.75 billion in additional after tax interest costs due to privatization. If we assume that Fannie Mae is able to pass this cost on to the mortgage market, then based on the \$639 billion in mortgages held or securitized by Fannie Mae, the additional interest costs translate into a 20- to 43-basis point increase in mortgage interest rates, all else held constant.<sup>37</sup> For Freddie Mac the \$330 million to \$660 million additional after-tax interest costs due to privatization would result in between a 6- and 13-basis-point increase in mortgage interest rates.<sup>38</sup>

To estimate the impact of privatization of both GSEs on mortgage interest rates, we combine the after-tax interest savings on Freddie Mac and Fannie Mae to get between \$1.63 billion and \$3.26 billion in total interest savings because of their government association. Based on their combined mortgage holdings of \$1,133 billion, we would expect mortgage interest rates to rise between 14 and 29 basis points if Freddie Mac and Fannie Mae were able to pass the full cost of privatization to the mortgage market. These estimates of the impact on mortgage interest rates are relatively consistent with the 20- to 35-basis-point increase estimated independently by Cotterman-Pearce (1994).<sup>39</sup>

It is important at this point to offer a slightly different interpretation of what the facts in this section imply. Both GSEs have enjoyed spectacular increases in their stock values. The added “costs” of privatization might also be thought of as a current “savings” that the GSEs are capturing by their agency status. If we use the Cotterman-Pearce lower bound of 20 basis points for mortgage interest savings, then that implies a “savings” of \$2.27 billion per year on the combined Fannie Mae and Freddie Mac mortgage basis.<sup>40</sup>

Assuming that the GSEs face ‘A’ status and the upper bound debt savings of \$2.75 billion per year (as estimated in Section III of this study), then the portion of this savings not required to implicitly pass through as a mortgage interest rate reduction would be only \$0.48 billion (\$2.75 billion minus \$2.27 billion). At 10%, for example, the value of this \$0.48 billion would equal \$4.8 billion (when viewed as a perpetuity). This would not be very much in terms of what could be passed

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<sup>36</sup>  $(0.989 = 0.002 \times 494.7)$  and  $(1.7 = 0.0035 \times 494.7)$ .

<sup>37</sup>  $(0.002 = 1.37 \div 639)$  and  $(0.0043 = 2.6 \div 639)$ .

<sup>38</sup> Again, it should be noted that the analysis in this section assumes (rather unrealistically) that the GSEs would not change their current portfolio mix between mortgages held and mortgages securitized. One could safely assume that both GSEs would react to any increase in capital cost associated with privatization by increasing mortgage securitization.

<sup>39</sup> The reader should note that the estimates here and in Cotterman-Pearce are derived from totally independent financial instruments and sources for their values. If these particular estimates hold up (we encourage the reader to scrutinize them), it will be a great surprise to the authors (us).

<sup>40</sup>  $0.002 \times \$1.133$  billion.



on to shareholders to help explain the increase in stock value. Fannie Mae alone has seen its stock triple from about \$8 billion to \$24 billion in 5 years.

If the real mortgage interest savings were only 10 basis points, then the current implicit value of GSE status to Fannie Mae and Freddie Mac would be \$1.133 billion. If we additionally assume a growth rate in this savings of 3%, then the present value of the savings would be approximately \$23 billion.<sup>41</sup> This figure would go a long way to explaining the large equity value increases to the GSEs' shareholders. Obviously we are playing with a variety of parameters here in an attempt to make the point that there is room to explain how the benefits of agency status can be split between mortgage rate savings and the GSEs' shareholders. It is important to recognize that an explanation of the source of equity-holder gains is integral to explaining the magnitude of mortgage rate reduction.

## VI. CONCLUSION

This paper has analyzed the costs that Fannie Mae and Freddie Mac could expect to incur as wholly private organizations continuing their current operations with respect to the purchasing and securitizing of single-family mortgages. We have concentrated on estimating the current advantages that the GSEs enjoy relative to other firms (with respect to market premiums on their securities). Our assumption has been that if any price advantage currently exists due to the GSEs' relationship with the federal government, then as private entities any current premium advantage will disappear. To determine the impact of privatization on Fannie Mae and Freddie Mac, we have compared the yield and return spreads on their debt to various portfolios of corporate bonds and estimated the change in the cost of capital.

We estimated the differences in yields and returns between portfolios of GSE and corporate bonds, controlling for factors associated with liquidity and taxes. The results indicate that if the GSEs are privatized in such a way as to maintain or receive a 'AAA' rating, they may not experience any significant increase in the returns to their securities. The results also indicate that if the GSEs received a 'AA' or 'A' rating after privatization, they could expect to increase returns to investors by as much as 1% to 2% per annum, respectively.

We also estimated the increase in the cost of capital that the GSEs could expect if privatized, based on Fannie Mae's weighted average cost of capital compared to other firms in the Banking and Finance Industry. The results indicate that Fannie Mae could expect an increase of 1.52% or \$3.6 billion per year (before tax) and \$1.275 billion for Freddie Mac (using Fannie Mae's expected increase in WACC of 1.5%). These results compare favorably with the 1% to 2% increase in returns estimated from Section II and provide a relatively independent check.

Section V of the paper provides estimates of the impact on mortgage rates from privatization. If all of the added financing costs are passed on to mortgagors, then there could be a 14- to 29-basis-point increase in future mortgage rates. Similarly, current mortgagors can be viewed as saving 14-

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<sup>41</sup>  $(2.75 \text{ billion} - 1.133 \text{ billion}) \div (0.1 - 0.03) = 23 \text{ billion.}$

to 29-basis-points per year if we assume all of the interest savings currently enjoyed by the GSEs (through reduced debt costs) are passed on to mortgagors.

The implications of these results to the mortgage and housing markets are clear. Given the recent decreased emphasis by Fannie Mae and Freddie Mac on securitizing mortgages, the increased costs of capital would have a direct effect on the costs associated with operating their mortgage portfolios. To the extent that other private firms attempt to enter the market, this would place downward pressure on the ability of the GSEs to pass these costs on to the consumers. In addition, the increased cost of capital for the GSEs would make thrifts more competitive with them since the GSEs' capital costs would be based on economic fundamentals rather than any premium associated with their government sponsorship. The effects of privatization on MBSs is less clear. Assuming that the GSE maintain the current level of MBS activity and that investors value the individual collateral over any perceived link between the GSEs and the federal government, then the effects of privatization on the MBS market would be minimal.

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**APPENDIX**  
**Number of Bonds Per Month Used in Return Differences**  
**and Yield Spread Differences**

**TABLE A-1**

The number of non-callable bonds (matched pairs) in each rating class by date

Date	Agency	AAA Corp	AA Corp	A Corp	AAA Fin	AA Fin	A Fin	GE	Govt
2/28/85									1
3/31/85	5				1	6	2		5
4/30/85	9	1	4	5	1	6	4		6
5/31/85	11	1	6	10	3	7	5		10
6/30/85	13	3	8	11	5	7	8		14
7/31/85	15	5	9	15	7	8	8		15
8/31/85	16	7	11	16	7	8	8		20
9/30/85	19	7	11	17	7	9	10		21
10/31/85	24	7	12	20	7	9	13		24
11/30/85	29	7	13	24	7	12	15		29
12/31/85	33	7	15	29	8	15	16		31
1/31/86	37	8	18	31	8	15	17		34
2/28/86	38	8	17	35	8	22	18		39
3/31/86	44	8	22	41	8	25	22		42
4/30/86	50	8	27	45	8	26	26		43
5/31/86	50	11	33	56	8	32	24		48
6/30/86	53	12	35	62	8	40	28		51
7/31/86	39	12	41	65	10	43	28		52
8/31/86	56	14	42	70	11	43	31		55
9/30/86	74	15	43	78	11	43	31		57
10/31/86	44	16	43	82	15	46	32		59
11/30/86	44	16	43	83	17	48	36		64
12/31/86	47	16	43	83	15	40	36		67
1/31/87	48	18	63	104	20	58	46		68
2/28/87	49	19	63	111	20	54	54		71
3/31/87	49	20	61	116	21	52	57		73
4/30/87	51	18	61	113	19	54	58		73
5/31/87	68	18	78	101	19	71	46		78
6/30/87	75	19	78	106	21	71	46	1	79
7/31/87	79	21	79	117	23	76	51	1	79
8/31/87	79	22	81	128	23	73	61	1	83
9/30/87	76	21	82	127	25	76	61	1	83
10/31/87	103	21	100	131	27	89	66	2	85
11/30/87	106	22	121	131	24	95	70	3	88
12/31/87	109	22	122	133	24	93	72	3	89
1/31/88	105	22	121	136	25	100	76	4	91
2/29/88	107	22	115	150	25	91	78	4	93
3/31/88	108	23	117	152	26	97	79	4	94



Date	Agency	AAA Corp	AA Corp	A Corp	AAA Fin	AA Fin	A Fin	GE	Govt
4/30/88	109	27	118	159	32	98	85	5	95
5/31/88	108	26	125	162	28	101	83	5	97
6/30/88	109	28	127	170	31	104	93	5	98
7/31/88	110	30	131	178	49	105	93	5	99
8/31/88	112	29	130	178	39	105	95	5	101
9/30/88	111	30	130	182	36	105	100	5	102
10/31/88	110	30	124	185	34	108	99	6	103
11/30/88	110	31	118	190	34	101	101	5	106
12/31/88	110	31	118	189	33	103	104	5	108
1/31/89	111	31	121	190	26	105	102	6	106
2/28/89	113	30	121	191	28	105	109	6	111
3/31/89	123	31	118	182	40	107	114	7	111
4/30/89	126	32	119	204	38	107	114	8	112
5/31/89	126	51	129	219	55	106	134	8	114
6/30/89	125	47	131	213	53	115	139	8	114
7/31/89	125	45	127	212	77	114	139	8	115
8/31/89	89	42	101	192	40	73	93	3	118
9/30/89	90	40	99	188	41	74	95	3	120
10/31/89	91	36	97	190	42	73	96	3	121
11/30/89	92	35	105	196	40	81	101	3	121
12/31/89	92	45	97	187	48	73	95	3	123
1/31/90	92	51	104	199	54	78	103	3	123
2/28/90	92	49	109	212	51	84	108	3	127
3/31/90	93	54	104	219	58	82	119	3	127
4/30/90	95	52	109	227	57	92	115	3	127
5/31/90	95	52	108	232	56	98	114	3	131
6/30/90	96	55	117	249	60	94	135	3	129
7/31/90	97	55	118	261	59	93	142	3	130
8/31/90	97	53	126	273	58	96	153	3	134
9/30/90	98	53	127	280	60	98	156	4	133
10/31/90	95	57	128	269	61	99	153	6	133
11/30/90	94	57	125	281	61	105	158	7	136
12/31/90	94	58	130	304	61	109	171	8	135
1/31/91	93	60	134	311	61	111	170	9	136
2/28/91	91	60	90	360	58	57	195	9	140
3/31/91	90	62	101	395	57	60	213	10	137
4/30/91	90	62	108	409	56	59	222	10	140
5/31/91	89	63	111	436	57	59	237	11	144
6/30/91	88	63	113	455	58	62	241	10	142
7/31/91	88	65	115	470	65	55	245	10	145
8/31/91	88	66	118	487	104	60	252	6	149
9/30/91	87	38	105	516	186	45	280	6	147
10/31/91	87	43	118	554	228	51	308	7	149
11/30/91	86	43	116	574	226	52	335	7	152
12/31/91	88	44	125	595	235	55	317	7	152
1/31/92	88	202	132	609	37	42	325	8	152
2/29/92	89	205	143	632	37	45	329	10	152
3/31/92	88	201	153	644	33	47	331	10	152

Date	Agency	AAA Corp	AA Corp	A Corp	AAA Fin	AA Fin	A Fin	GE	Govt
4/30/92	90	208	157	658	32	49	337	10	153
5/31/92	88	199	165	665	38	50	381	14	154
6/30/92	87	202	159	688	40	49	391	15	154
7/31/92	86	217	162	743	27	47	378	15	155
8/31/92	88	219	170	769	27	48	390	15	157
9/30/92	88	220	175	762	27	50	381	15	157
10/31/92	86	219	183	784	25	49	391	15	158
11/30/92	90	212	196	767	23	51	370	13	159
12/31/92	86	219	199	769	80	57	382	13	159
1/31/93	93	224	203	772	76	57	402	13	161
2/28/93	91	227	206	804	75	58	385	12	163
3/31/93	92	231	214	831	23	51	402	12	162
4/30/93	91	233	212	863	22	49	420	12	163
5/31/93	91	230	214	894	20	50	442	12	163
6/30/93	90	233	221	904	21	49	469	13	163
7/31/93	88	241	229	955	20	50	490	12	163
8/31/93	90	237	232	969	20	52	506	12	165
9/30/93	92	237	234	993	20	53	524	12	165
10/31/93	93	240	238	1011	20	55	540	12	165
11/30/93	94	230	248	1029	20	63	552	12	165
12/31/93	94	191	202	958	20	63	558	12	165
1/31/94	94	186	203	968	19	59	545	11	165
2/28/94	94	185	202	984	19	60	550	11	166
3/31/94	97	179	203	1016	19	61	583	11	166

TABLE A-2

The number of callable bonds (matched pairs) in each rating class by date.

Date	Agency	AAA Corp	AA Corp	A Corp	AAA Fin	AA Fin	A Fin	GE
3/31/85					1		1	
4/30/85		1	1	2	2	5	4	
5/31/85		1	6	9	3	9	9	
6/30/85		3	10	16	4	11	14	
7/31/85		4	13	27	4	14	16	
8/31/85		5	19	30	4	18	17	
9/30/85		5	25	47	5	20	21	
10/31/85		6	29	52	5	24	26	
11/30/85		9	35	65	5	26	31	
12/31/85		10	41	77	6	28	38	
1/31/86		10	45	103	6	30	43	
2/28/86		10	44	116	6	37	55	
3/31/86		11	62	142	9	42	65	
4/30/86		12	76	166	8	45	67	
5/31/86		20	104	178	9	49	61	
6/30/86		19	119	186	10	58	63	
7/31/86		19	137	200	10	59	64	

Date	Agency	AAA Corp	AA Corp	A Corp	AAA Fin	AA Fin	A Fin	GE
8/31/86		19	141	199	10	60	65	
9/30/86	1	21	150	210	10	61	65	
10/31/86	2	21	156	209	10	58	66	
11/30/86	2	22	158	214	10	59	70	
12/31/86	2	20	146	224	10	43	81	
1/31/87	2	24	157	255	14	48	91	
2/28/87	2	27	161	265	14	51	92	
3/31/87	2	26	162	270	13	45	97	
4/30/87	2	26	162	268	13	42	94	
5/31/87	2	26	176	264	12	56	81	
6/30/87	2	27	180	271	13	55	83	
7/31/87	2	27	183	283	12	56	83	
8/31/87	2	28	183	289	12	57	85	
9/30/87	2	24	189	281	13	58	87	
10/31/87	2	29	195	305	18	61	89	
11/30/87	2	29	197	307	17	63	90	
12/31/87	3	30	200	312	17	63	90	
1/31/88	3	30	191	321	17	63	97	
2/29/88	3	30	194	339	17	62	98	
3/31/88	3	32	198	341	19	69	97	1
4/30/88	3	35	197	344	19	70	104	1
5/31/88	3	37	194	361	14	66	89	1
6/30/88	3	37	197	365	19	74	112	2
7/31/88	3	40	199	389	21	75	113	2
8/31/88	3	41	196	394	24	75	116	3
9/30/88	3	43	195	396	24	75	117	3
10/31/88	4	43	193	399	18	74	117	3
11/30/88	4	43	186	399	18	70	118	3
12/31/88	4	44	185	396	18	74	115	3
1/31/89	4	40	188	396	14	70	100	4
2/28/89	4	39	195	395	17	79	117	4
3/31/89	4	41	184	342	25	77	121	4
4/30/89	4	42	209	405	21	76	107	3
5/31/89	4	44	196	399	25	64	111	3
6/30/89	4	39	197	388	23	70	127	3
7/31/89	8	39	185	383	21	64	102	3
8/31/89	9	40	167	351	16	43	57	3
9/30/89	8	41	167	326	17	45	57	3
10/31/89	12	40	168	323	17	45	55	3
11/30/89	13	38	166	333	16	49	59	3
12/31/89	14	39	162	323	17	46	55	3
1/31/90	15	40	155	315	17	49	55	3
2/28/90	17	39	166	322	17	55	59	3
3/31/90	18	41	163	315	20	53	59	3
4/30/90	20	45	155	320	23	53	59	3
5/31/90	21	45	157	316	23	54	51	3
6/30/90	22	44	158	317	23	46	60	3
7/31/90	23	41	161	316	23	46	60	3

Date	Agency	AAA Corp	AA Corp	A Corp	AAA Fin	AA Fin	A Fin	GE
8/31/90	28	40	161	319	23	46	61	3
9/30/90	30	40	161	325	23	46	63	3
10/31/90	31	39	161	318	22	46	62	3
11/30/90	36	39	162	317	22	46	61	3
12/31/90	37	36	163	321	19	45	61	3
1/31/91	38	35	165	316	17	46	60	3
2/28/91	40	34	137	337	16	23	73	3
3/31/91	40	34	138	350	16	22	73	3
4/30/91	43	34	137	353	16	22	74	3
5/31/91	43	34	136	363	16	23	73	3
6/30/91	46	34	138	366	16	24	72	3
7/31/91	49	34	142	367	17	23	76	3
8/31/91	50	32	143	371	20	24	77	3
9/30/91	52	31	153	364	30	30	76	2
10/31/91	55	32	159	389	28	34	88	2
11/30/91	57	32	157	384	33	34	90	2
12/31/91	57	32	154	382	36	29	86	2
1/31/92	57	36	158	387	12	28	84	2
2/29/92	57	35	157	390	12	28	84	2
3/31/92	62	35	157	389	13	26	83	2
4/30/92	66	36	156	391	14	29	83	2
5/31/92	70	34	155	382	12	28	76	2
6/30/92	70	32	147	393	13	26	75	2
7/31/92	75	35	152	417	13	22	67	2
8/31/92	77	33	155	415	13	22	66	2
9/30/92	87	30	155	402	12	22	63	2
10/31/92	88	30	154	398	10	23	59	2
11/30/92	86	28	155	387	8	23	54	2
12/31/92	84	27	154	384	8	24	53	2
1/31/93	89	28	153	375	7	23	50	2
2/28/93	95	25	151	368	7	22	48	2
3/31/93	98	27	148	361	8	17	40	2
4/30/93	112	26	147	343	7	17	30	2
5/31/93	110	27	146	346	7	14	29	2
6/30/93	119	24	134	334	6	9	28	2
7/31/93	116	24	136	325	6	8	24	2
8/31/93	115	24	143	323	6	9	25	2
9/30/93	116	25	139	331	6	9	24	2
10/31/93	118	23	141	329	5	9	25	1
11/30/93	121	23	131	323	5	9	24	1
12/31/93	128	19	91	265	4	9	22	1
1/31/94	137	20	90	264	2	9	20	1
2/28/94	140	20	90	268	2	9	22	1
3/31/94	146	20	89	272	1	9	24	1



# COMMENTS ON THE AMBROSE-WARGA AND COTTERMAN-PEARCE PAPERS

**James D. Shilling**

I am uneasy about accepting the Ambrose-Warga and Cotterman-Pearce analyses as the proper vehicles to determine the desirability and feasibility of repealing the federal charters of Fannie Mae and Freddie Mac, eliminating any federal sponsorship of the enterprises, and allowing the enterprises to operate as fully private entities. My reservations have to do not so much with what these studies say as with what they do not say.

## I. THE AMBROSE-WARGA PAPER

The Ambrose-Warga paper examines the effects of privatization on the cost of debt and equity capital to Fannie Mae and Freddie Mac. The benefit of agency status is measured as the difference between the imputed borrowing cost, assuming that Fannie Mae and Freddie Mac had no benefit of a perceived federal guarantee of their debt obligations, and their actual borrowing costs. This difference approximates the rise in the GSEs' borrowing cost if federal sponsorship were removed. The increase would be absorbed by equityholders and mortgage purchasers.

Ambrose-Warga estimate that the cost of credit for the GSEs would be at least 100 to 200 basis points above that for AAA-rated securities if agency status were removed and if the GSEs were to receive bond credit ratings that might range as low as AA or A. Ambrose-Warga further estimate that, based on year-end 1993 portfolio values, a 100-basis-point increase in cost of credit to Fannie Mae and Freddie Mac translates into a subsidy cost of \$1.37 billion per year for Fannie Mae and \$330 million per year for Freddie Mac (calculated by multiplying the subsidy cost of 100 basis points times the GSEs' portfolio value).

The difficulty with these calculations is that spreads between long-term AA or A debentures and GSEs' borrowing costs fluctuate considerably over time. The volatility of these spreads is quite consistent with the view that the residual value of Fannie Mae and Freddie Mac is the value of their perceived guarantee. During the March 1985 to March 1994 period, the data show that the promised average yield spreads between non-callable corporate AA or A bonds and non-callable Agency bonds varied from a low of 37 basis points in 1985–90 to a high of 65 basis points in 1991–94. The realized average yield spreads between non-callable corporate AA or A bonds and non-callable Agency bonds, on the other hand, varied from a low of 8 basis points in 1985–90 to a high of 209 basis points in 1991–94.

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Ambrose-Warga choose to interpret only the most recent yield spreads, arguing that the most recent period is the most reflective of the GSEs' current financial position relative to other firms. Moreover, Ambrose-Warga focus their attention on the realized average yield spreads between corporate AA or A bonds and Agency bonds (because of the serial correlation present in the yield spread time series). This approach is problematic for at least three reasons. First, it ignores the fact that, because of the benefits of agency status, both Fannie Mae and Freddie Mac are able to use the federal relationship in lieu of capital adequacy to preserve preferential borrowing conditions and to operate with a low ratio of accounting net worth (capital) to assets. As private firms, however, one would ordinarily expect credit market forces to restrict this tendency. Obviously, one way for the GSEs as private firms to respond to these new credit market forces would be to sell their portfolio of mortgages into mortgage-backed securities, thus eliminating their major source of risk, and use the net proceeds to reduce debt. Thus, it is unclear (at least to me) as to whether the 1991–94 period is the most reflective of the current financial status of Fannie Mae and Freddie Mac as private firms relative to other firms.

Second, which numbers are we to believe? The promised yields or the realized returns? The promised yields are ex-ante yields on bonds if held to maturity (and assuming no defaults occur). The realized returns are monthly measures of bond performance (i. e., percentage change in value over a 1-month holding period). The realized returns would be the relevant returns series if market expectations are essentially realized and if both GSEs were required to capitalize all economic losses immediately into changes in net worth. Normally, however, realized returns do not always follow expected rates of return. When this happens, a large positive realized return may simply signal a falling expected rate of return, and a small realized return may signal an increase in the investors' expected rate of return.

Third, even if one were to accept the fact that the realized returns are for all intents and purposes the most relevant returns series, the difference in returns between non-callable corporate AA or A bonds and Agency bonds over the entire 1985–94 period is not significantly different from zero. Surely this analysis is just a bit troublesome. Instead of suggesting a rise in the cost of Agency credit of 200 basis points, the analysis would then predict that the cost of Agency credit essentially would be unchanged if federal sponsorship were removed. Most people (I suspect) would reckon the 200-basis-point increase in the cost of Agency credit to be an extremely high estimate of the likely effect on the cost of Agency credit if federal sponsorship were removed and the no change in the cost of Agency credit to be a low estimate.

Turning now to Ambrose-Warga's analysis of the weighted average cost of capital for Fannie Mae and Freddie Mac, I have a hard time imagining the GSEs resembling Aetna Life & Casualty, Bankers Trust, Chase Manhattan, Citicorp, First Chicago, Kemper Corporation, Merrill Lynch & Co., and Travelers Corporation among others (which is what Ambrose-Warga assume). I say this first because the choice of an appropriate benchmark in this case is obviously critical to the entire analysis. The problem in selecting an appropriate benchmark for the GSEs may well explain why Ambrose-Warga obtain an exceedingly high estimate—at least relative to the conventional wisdom—of the likely impact on the GSEs' weighted average cost of capital if federal sponsorship were removed.

In discussing the effects of privatization on the secondary mortgage market, Ambrose-Warga seem to argue that yields on nonagency mortgage-backed securities are roughly 27 basis points higher than Agency mortgage-backed securities (based on a rather cursory comparison of yield differentials on current coupon agency and nonagency collateralized mortgage obligations). I stress “seem to argue” because Ambrose-Warga appear to be somewhat reluctant to attribute this entire yield spread to the value of agency status. Ambrose-Warga want us to believe, instead, that this yield differential is more likely attributable to a variety of factors particular to the individual issues, such as seasoning of the mortgage collateral, the geographic distribution of the collateral, and differences in liquidity. But simply because differences in seasoning, geographic distribution of the collateral, and liquidity may obscure the portion of the yield spread on nonagency mortgage-backed securities attributable to the value of agency status, it does not necessarily follow that the value of agency status is negligible.

Finally, when judging the effect of privatization on mortgage interest rates, Ambrose-Warga conclude that mortgage rates might rise by between 14 and 29 basis points if Fannie Mae and Freddie Mac are able to pass the full cost of privatization onto mortgage borrowers. This estimate is relatively consistent with the 20- to 35-basis-point increase estimated by Cotterman-Pearce.<sup>1</sup> This leads me to believe that Ambrose-Warga’s estimate of the likely rise in the GSEs’ cost of credit (if federal sponsorship of the GSEs were removed) overstates the true rise in the GSEs’ cost of credit by as much as their estimate of the likely rise in the cost of mortgage-backed securities understates the true rise in the cost of mortgage-backed securities.

## II. THE COTTERMAN-PEARCE PAPER

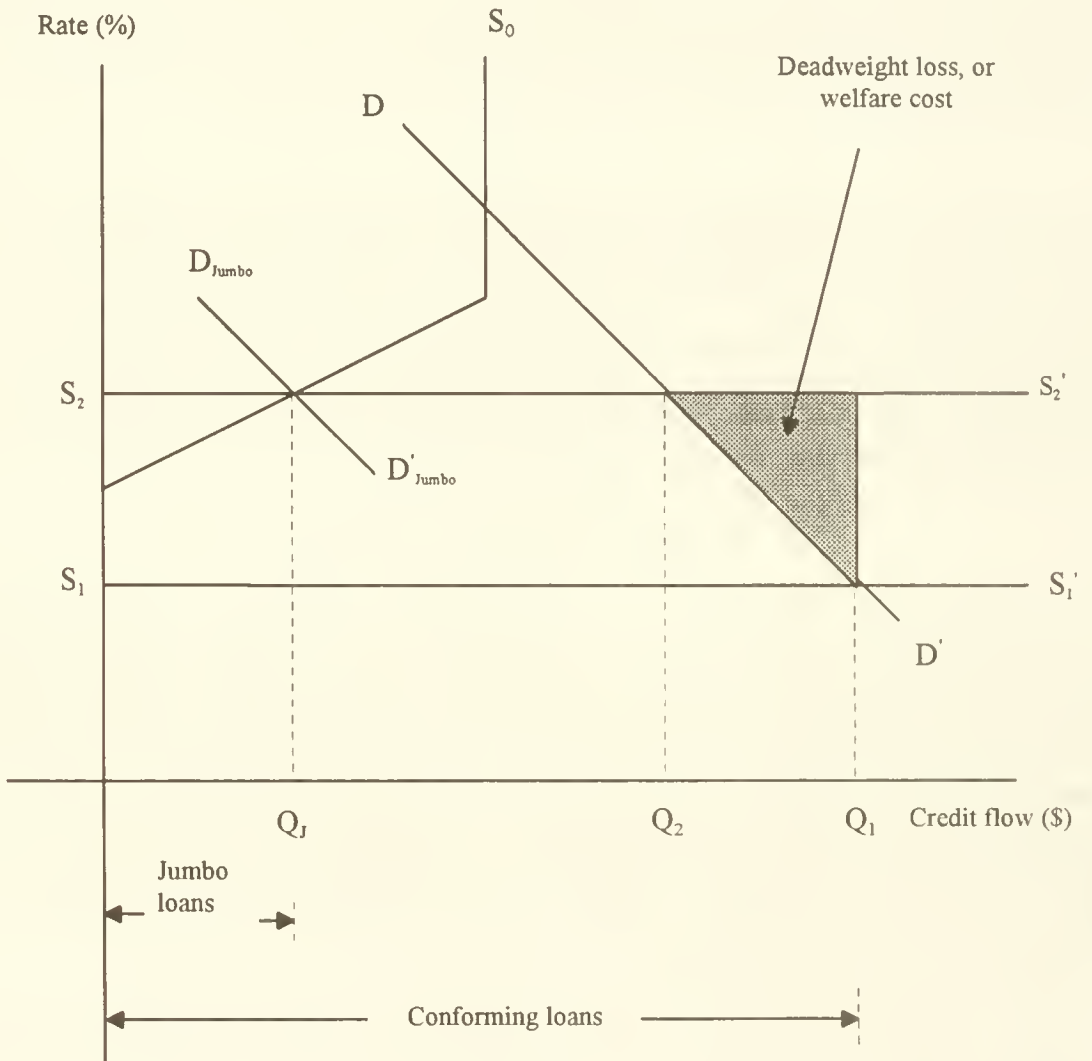
The Cotterman-Pearce paper examines the effect of privatization on the mortgage interest rate. Updating some work I did with Patric Hendershott in 1989, the Cotterman-Pearce paper measures the impact of the GSEs on conventional fixed-rate mortgage yields by comparing new-issue yields on so-called jumbo loans (i. e., loans that cannot be securitized by GSEs because the loan size exceeds the conforming loan limit) with new-issue yields on conforming loans. The tests consist of an analysis and comparison of yields on samples of conventional fixed-rate mortgages closed in California in May to July of 1989 through 1993. Cotterman-Pearce conclude that rates on conforming fixed-rate mortgage loans would rise by 20 to 35 basis points if the implicit federal backing of the GSEs’ securities were withdrawn.<sup>2</sup> These results seem to be at or slightly below the level that Hendershott and I estimated earlier.

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<sup>1</sup>[In their draft. In their final text, Cotterman-Pearce conclude that 25 to 40 basis points is the “core range of the conforming loan differential” (p. 102 in this volume). —EDITOR]

<sup>2</sup>[In their draft. In their final text, Cotterman-Pearce conclude that the estimated conforming loan differential “primarily reflects the advantages of agency status,” but they “recommend caution in using this range as an estimate of the change in conforming loan rates resulting from complete withdrawal of agency status from Fannie Mae and Freddie Mac” (p.102 in this volume). See also footnote 1, *supra*. —EDITOR]

FIGURE 1





While quite sympathetic to the Cotterman-Pearce study, I at the same time believe that the paper focuses on the wrong issue if it wishes to evaluate whether the GSEs should be privatized. The more germane question is whether agency status creates a deadweight loss and, if so, what is its order of magnitude.

Normally, the philosophy of privatization is that market prices allocate resources more efficiently than does government fiat and that market forces induce better management than does government regulation. In the case of Fannie Mae and Freddie Mac, however, both GSEs are very well-run firms. Both GSEs also are very efficient in matching the duration of their assets and liabilities through the issuance of mortgage-backed securities.

Still, as with any incidence analysis, there is bound to be deadweight loss to society resulting from a government subsidy. This point is illustrated in Figure 1, which depicts the demand and supply of conforming and nonconforming (i.e., jumbo) single-family mortgages. Three supply curves are shown: the curve labeled  $S_0$  is the supply of mortgage credit by banks and S&Ls; the curve labeled  $S_1S'_1$  is the supply of conforming fixed-rate mortgage credit by Fannie Mae and Freddie Mac; and the curve labeled  $S_2S'_2$  is the supply of mortgage credit by the GSEs assuming all implicit federal backing is withdrawn. Two demand curves are shown: the curve labeled  $DD'$  is the demand for conforming fixed-rate mortgages, and the curve labeled  $D_{\text{jumbo}}D'_{\text{jumbo}}$  is the demand for jumbo fixed-rate mortgages. The demand and supply curves are drawn assuming (1) that the GSEs are the marginal lenders in the conforming fixed-rate mortgage market, (2) all conforming fixed-rate mortgages are securitized (this assumption was made for ease of exposition), and (3) in the absence of the federal backing of the GSEs, the interest rate on conforming fixed-rate mortgages would increase from  $S_1S'_1$  to  $S_2S'_2$ . At  $S_2S'_2$ , the rate on conforming fixed-rate mortgages and jumbo fixed-rate mortgages would be identical.

Five observations about Figure 1 are worth noting. First, the aggregate cost of the implicit subsidy to conforming loan borrowers is the area  $S_2Q_1-S_1Q_1$ . Second, the aggregate benefit to conforming loan borrowers is the area  $S_2Q_2-S_1Q_2$  plus the triangle  $S_2-S_1-Q_1$ . Third, because the aggregate benefits are less than the costs, this in turn means a deadweight loss to society. This deadweight loss is the shaded triangle. Fourth, a really small deadweight loss (meaning the subsidy to mortgage borrowers is an efficient transfer) would speak against repealing the GSEs' federal charters. Fifth, to the extent that the government should maintain a safety net in the secondary mortgage market to ensure the availability of mortgage funds, it follows that federal sponsorship of Fannie Mae and Freddie Mac would be extremely desirable.

When judging the effect of privatization on the mortgage interest rate and housing affordability, it is imperative to keep in mind that the newly issued yield spread between jumbo mortgages and conforming mortgages is apt to overstate the full effect of privatization on the mortgage interest rate. First and foremost, owing to their agency status, both Fannie Mae and Freddie Mac currently enjoy many exemptions from securities laws. If privatization eliminated these privileges, both GSEs might be precluded from operating on a nationwide basis. Because of this, it is reasonable to assume that both GSEs once privatized would continue to enjoy these asserted benefits. If so, it follows, that

interest rates on conforming mortgage loans would rise by less than the estimated 20 to 35 basis points should the implicit federal backing of the GSEs' securities be withdrawn.

Along these same lines, a case could be made that, because of the GSEs' size, significant economies of scale exist which have resulted in real cost savings to conforming fixed-rate mortgage borrowers and which do not currently exist in the jumbo mortgage market. If so, then the 20- to 35-basis-point spread between jumbo mortgages and conforming mortgages would represent in part the value of agency status (including exemptions for securities law) and in part welfare gains arising from economies of scale. This may explain why Cotterman-Pearce's estimates of the value of agency status are higher than those of Gatti and Spahr (1994) and Cook and Spellman (1992). Gatti and Spahr estimate the value of the federal guarantee to Freddie Mac to be about 12 to 18 basis points. Gatti and Spahr further estimate the expected loan loss on all mortgages that were securitized by Freddie Mac from 1979 through 1984, and which defaulted from 1983 through 1988 (a particularly severe real estate recession) to be only 27 basis points. Cook and Spellman (1992), applying a similar methodology, estimate the value of the federal guarantee to be quite small (i.e., less than 12 basis points) for capital/asset ratios above 3% and bailout premiums less than 100 basis points.

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# REVIEW OF THE AMBROSE-WARGA AND COTTERMAN-PEARCE PAPERS

Douglas O. Cook

In this discussion I will be reviewing two papers that analyze the effect of privatizing the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). I will address the issues of methodological and technical soundness and reasonability in each paper and then provide a concluding statement.

## I. THE AMBROSE-WARGA PAPER

This paper analyzes the effect of privatization on the cost of debt financing, the cost of capital, MBSs, and mortgage interest rates. Because there is only a small degree of dependence across sections of the paper, I will generally examine the paper's four major sections rather than focusing on the paper in its entirety.

### A. Differences in Yield and Return Spreads

#### (1) *Overview*

In this section the authors analyze the increased cost of debt financing to Fannie Mae and Freddie Mac under privatization. The empirical methodology compares debt financing costs of the GSEs' bonds against various other portfolios across categories, under the premise that after the GSE status is removed, Fannie Mae and Freddie Mac would resemble one of these (U.S. Government excluded). Portfolios are formed monthly over the periods 1985–94, 1985–90, and 1991–94 based on the categories of seasonality, six maturity levels, and coupons higher or lower than yield. Partitions are reported for the callability feature, three levels of rating, and whether the issue is corporate or banking and finance. Two additional partitions are U.S. Government and General Electric Capital Corporation issues. Bonds with put features are excluded from the sample.

#### (2) *Methodological Issues*

In comparing the portfolios, one would like to select a measure of debt cost that is an ex-ante and accurate measure across categories. The authors use two measures—return and yield to maturity. Unfortunately, there are problems with both of these measures. Because the returns are *realized* returns, the calculation is ex-post and based on data points constructed from information sets at two points in time, that is,  $t$  and  $t-1$ . A defense of the authors' use of ex-post returns is that, on average, one would not expect these to be biased. However, they argue [in Section III of their final text] that

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the ex-post equity returns have been out-of-line with an equilibrium asset pricing model. They refer to this phenomenon as “an extraordinarily ‘good run.’”

There are three problems with yield to maturity. First, there is serial correlation in the yield spread time series. The authors recognize this as a problem and indicate that it invalidates the standard deviations and t-tests for differences in the mean yields. Second, yield to maturity is not comparable across time-dependent securities with different cash flow patterns. This becomes apparent with the realization that the yield to maturity is an internal rate of return. The internal rate of return assumes reinvestment at the internal rate of return, which is only valid given a flat term structure. Third, yield to maturity is a nonlinear function. Thus, the yield on a portfolio is not the simple weighted average of yield on constituents. The authors report the mean yield for comparison portfolios. This number is not meaningful in the same sense as a mean return for portfolios.

The yield to maturity problem can be ameliorated by constructing comparison portfolios based on similar cash flow patterns. This would require the use of additional coupon/maturity categories. The current sample partition only differentiates coupons as higher or lower than yield and segments maturity into six divisions. A possible methodological alternative would be to construct the term structure of spot interest rates. The authors could then use the spot rates to calculate the present value of portfolio bonds. The present values could be tested for differences across comparison portfolios.

### *(3) Results*

Although intuitively one would expect that the cost of debt would increase as a result of privatization, the data are not entirely convincing. For example, there is virtually no mean yield difference between the Agency and ‘AAA’ corporate non-callable bonds for the last subperiod. For the first subperiod, Agency debt had a higher mean return in three of the six rating/callable partitions.

It is not entirely clear why the sample period was partitioned. Partitioning would be justifiable if there were reason to believe that the value of the implicit guarantee had changed or if it could be empirically demonstrated that a structural shift had occurred. The authors only indicate that they partitioned the sample period on the basis of shifts in the GSEs’ financing activities and that this period corresponds with increased “exotic” debt activity that could lower the GSEs’ financing costs. However, they also acknowledge that any savings in financing costs would also be available to the private sector.

Given that returns are ex-post and are possibly out of equilibrium with ex-ante asset pricing models and that there are methodological problems with yield to maturity, the authors should report some nonparametric results. It would be informative for the authors to provide summary statistics for a fair number of cross-sectional periods. For example, useful statistics might include the number of issues, mean, median, high, and low.



## **B. The Cost of Capital**

### ***(1) Overview***

In this section the authors attempt to calculate the increased cost of capital for Fannie Mae ex-post privatization by assuming the GSE will resemble an index of banking and finance companies with median rating 'A1.' The authors calculate systematic risk components using both average equity and weighted average cost of capital (WACC) for 15 industries as the market index.

### ***(2) Methodological Issues***

Asset pricing models are used to price systematic risk factors. Unlike nonfinancial firms, the fundamental risks incurred by GSEs are credit and interest rate risks. Asset pricing models are typically modified to accommodate financial firms. The simplest modification example is to include a factor that proxies for the sensitivity of bank stocks to market interest rates.

The authors calculate stock and bond betas based on both a stock market index and a WACC market index. They express their preference for the WACC market index because it contains the debt claim and because it is more stable under capital structure changes in a Miller-Modigliani world. Table 6 shows the stock and bond betas under both indices. These results are troubling because not only do bond betas more than double but stock betas are also substantially increased. It is not obvious why this should be the case and the authors do not explain these results.

The authors note that the mean returns are much higher than predicted by the model. Although they characterize this as a "good run," it is a run that encompasses almost 6 years. These results suggest that the risk of Fannie Mae (primarily interest rate and credit) may not have been captured by the model.

The authors assume that Fannie Mae ex-post privatization will resemble an index of banking and finance companies with median rating 'A1.' If it turned out that Fannie Mae's rating was 'AAA,' there may not be any appreciable increase in the cost of capital.

## **C. Impact on Mortgage-Backed Securities**

In this section of the paper the authors note that there is a substantial difference in yield spreads between Agency and nonagency MBSs. The authors indicate that this spread may be attributable to a variety of factors but concede that they are unable to determine the reason for the yield spread difference. The authors suggest that MBSs may be overcollateralized. Given also that the underlying mortgages have private mortgage insurance, they postulate that GSE privatization would have only a limited effect on the pricing of mortgage-backed securities.

## **D. Impact on Mortgage Interest Rates**

In determining the impact of privatization on mortgage interest rates, the authors conjecture that Fannie Mae would have to increase the interest rate on MBSs and mortgage rates by 20 to 43 basis points to cover their increased costs. I am puzzled by this since in the preceding section of the paper they had concluded that privatization would not have much impact on MBSs. In calculating the effect on interest rates, the authors assume that Fannie Mae is able to pass its increased debt cost on to the mortgage market.

The confidence to be placed in the numbers in this section is somewhat limited. It might be useful for the authors to analyze the dynamics of the privatization effect on the GSEs. The process would have an important effect on wealth shifts; for example, existing bondholders might bear a large amount of the cost of privatization. An analysis of the extent to which the GSEs' business would change would be interesting. Both GSEs have technology that could be used to gain access to a variety of market opportunities that are currently proscribed. Additionally, the GSEs would be entitled to prescreen their loans based on economic criteria rather than political criteria. Thus, the social benefits of privatization should also be considered in any analysis.

## **II. THE COTTERMAN-PEARCE PAPER**

This paper analyzes the effect of GSE securitization on mortgage interest rates. In performing their analysis, the authors compare the rates on loans with balances above the conforming loan limit (jumbos) to those with balances below the conforming loan limit (conforming) under the premise that after controlling for various other sources of variation, the differential can be attributable to securitization. In addition to rate differentials, the authors evaluate loan volumes. If conforming loans are relatively more attractive than nonconforming loans, then one would expect to observe a concentration of loans at the conforming limit and comparatively few above the limit.

The data used in the study are extracted from the Mortgage Interest Rate Survey (MIRS). These data are restricted to single-family, nonfarm, residential properties. MIRS excludes refinances, second mortgages, interim loans, and construction loans (beginning with the November 1991 survey).

### **A. Rate Differentials**

#### *(1) Overview*

Earlier studies of Hendershott and Shilling (1989) and ICF Incorporated (1990) found differentials between conforming and jumbo loans. For example, Hendershott-Shilling found differentials of 5 basis points in 1978 prior to securitization. In the 1980s, subsequent to securitization, they found that differentials had increased to 30 basis points. This has been interpreted as implying that the effect of securitization is to increase the differential by 25 basis points. The authors suggest that increased private securitization of the jumbo market may have narrowed the differential. Thus, they

examine the data from 1989 through 1993 and relax the requirement that restricts mortgage lenders to Savings and Loans. The authors also evaluate the differential outside the California market (11-state aggregate), explore monthly patterns in the rate differential, assess structural developments in the jumbo secondary market, and analyze transitory changes affecting the rate differential.

The authors follow closely the regression methodology employed by Hendershott-Shilling and ICF Incorporated. They regress coupon rate on a variety of factors. The control variables employed are June and July indicators, the natural logarithm of loan size, indicators for four loan-to-value ranges, indicators for geographical regions (to control for different mean default rates), and an indicator for newly constructed homes. To test for differences between conforming and jumbo loans, they use an indicator for loans that is at or under the conforming loan limit.

## *(2) Methodological Issues*

Mortgages are collateralized loans. Thus, the rate charged by institutions should be related to two main risk factors:

- The ability and willingness of the borrower to repay.
- The value of the collateral in case the borrower defaults.

*Ceteris paribus*, mortgage lenders should charge a higher rate when borrowers are less likely to repay and when the loan is less collateralized.

The regression methodology does not control for the first risk factor by including, for example, loan-to-income ratios. The second risk factor is proxied by using the loan-to-value indicators. Unfortunately, the data illustrate that this indicator is not very successful in controlling for default risk. The indicators are constructed so that leverage increases over the interval [LTV1, LTV3]. Therefore, one would expect the signs on the LTV variables to be positive and statistically significant and increasing over the interval. Tables 11–15 contain 45 LTV coefficients. Only six of these are positive and significant at the 5% level. In addition, eight of the coefficients are negative and significant at the 5% level. This is a potentially serious problem because to the extent that institutions price default risk and there are systematic differences between conforming and jumbo loans, the model is misspecified and the estimates are biased.<sup>1</sup>

In their regressions the authors use coupon rate as the dependent variable. Coupon rate does not include points charged by the lender. To the degree that points are a reflection of borrower risk, the dependent variable will be a less reliable proxy for borrower cost. The authors indicate in the paper that they did run the regressions with effective yield (which includes the straight-line amortization of points) as the dependent variable, and found them to be qualitatively similar. These results

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<sup>1</sup>[In their revised paper included in this volume, the corresponding counts of LTV coefficients, as displayed in Appendix Tables 16 and 17 (pp. 161–162) are: For California, 3 out of 15 LTV coefficients are positive and significant at the 5% level, and 2 (all in one year, 1992) are negative and significant at the 5% level; and for the 11-state sample, 8 out of 15 are positive and significant at the 5% level and none are negative and significant at the 5% level.—EDITOR.]

would seem to be more interesting than those reported although I am not sure that a straight-line amortization of points over 10 years adequately reflects the front-end loading or early-year default probabilities.

Mortgage insurance is another cost to the borrower that is related to the riskiness of the loan and omitted from the loan-cost calculation. This omission also reduces the reliability of the coupon rate as a borrower cost proxy.

### **(3) Results**

Table 3 shows that there is considerable variation in the estimated differential. For example, California S&L differentials vary from -56.3 basis points in 1989 to 45.7 basis points in 1992.<sup>2</sup> (After eliminating what the authors visually determined to be data discrepancies, the 1992 differential was restated to be -11.6 basis points.) Generally, as the authors state, differentials are about 20 to 30 basis points for the California and 11-state aggregate results.

Using 1989 as a benchmark, the data show that differentials have declined over the 1989-93 period. In addition, regressions of the differential on proxies for increased securitization support the premise that increased securitization of jumbos was partially responsible for this decline. The year 1989 is probably not an appropriate benchmark year since the differential is higher than the earlier years' differential estimates of Hendershott-Shilling or the revised earlier years' results of the authors. At least it appears that recent differentials are no greater than the earlier differentials found by Hendershott-Shilling.

## **B. Loan Volumes**

The authors employ an independent test of loan differentials under the premise that if there were some advantage to obtaining a conforming loan, borrowers would be willing to make a sacrifice to obtain this loan. An ensuing empirical hypothesis states that the number of individuals borrowing at the conforming loan limit would vary with the size of the rate differential and inversely with the amount that would have been borrowed in the absence of the rate differential. This is an interesting hypothesis that is, unfortunately, not directly tested in the paper. The authors do observe a relatively large mass of loans at the conforming limit and a relatively small mass above the conforming limit. They also find weak evidence of changes in the size of the rate differential over the past couple of years by analyzing the changes in mass at the limit relative to the mass above the limit under a specified distributional assumption.

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<sup>2</sup>[These are Cotterman-Pearce's preliminary results. The corresponding results in their final text are in Table 6 (p. 125): California S&L differentials vary from -47.5 basis points in 1991 to -17.4 basis points in 1992 and do continue to show the declining pattern since 1989 discussed by Mr. Cook in the next paragraph. —EDITOR.]



### III. CONCLUSION

Both papers present evidence that government sponsorship of Fannie Mae and Freddie Mac reduces interest rates by roughly 20 to 30 basis points. These results are not significantly different from the earlier period estimates of Hendershott-Shilling employing a similar methodology. They are somewhat larger than federal guarantee estimates derived by Cook and Spellman (1992) and Gatti and Spahr (1994).

A comparative advantage of Fannie Mae and Freddie Mac is to use their status as GSEs to borrow heavily at very low rates. If the GSE status were removed, a dynamic adjustment would take place. This is an interesting issue for future research that neither paper addresses. For example, the GSEs would have to significantly reduce their leverage. How would this affect existing bondholders? Would other borrowers benefit as the debt markets become “less crowded”? Would the GSEs substitute equity for debt or would they downsize their businesses? Would the GSEs’ business mix change as regulatory restrictions were reduced? How would the market rate GSE debt subsequent to these changes? How would the mortgage market be affected by these changes?

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# FANNIE MAE REVIEW OF THE COTTERMAN-PEARCE AND AMBROSE-WARGA PAPERS

## I. THE COTTERMAN-PEARCE PAPER<sup>1</sup>

Expanding upon previous research and utilizing more recent data from the Federal Housing Finance Board (FHFB) Mortgage Interest Rate Survey (MIRS), Messrs. Cotterman and Pearce conclude that rates on conforming, fixed-rate mortgage loans would rise by 20 to 35 basis points “if the implicit federal backing of agency securities were withdrawn.”<sup>2</sup> This conclusion is consistent with earlier findings based on similar data for earlier periods.

Based on the data available to the authors (which they acknowledge are imperfect, and include considerable input errors), their conclusion, that the differential between a conforming and nonconforming loan has been in the 20- to 35-basis-point range, appears reasonable.

The researchers’ creative exploration of the distribution of loan amounts by size showed a concentration of fixed-rate loans at the conforming loan limit, providing additional evidence that mortgage loans that could be sold to Fannie Mae or Freddie Mac had greater value—and thus lower mortgage interest rates for homeowners.

The authors had limited success in explaining the causes of movements in the conforming/nonconforming spread by relating the spread to such variables as the relative issuance of jumbo securities and the yield curve, and there remains considerable “unexplained” movement in this spread. This explanation may have been expected in view of the quality of the data.

However, the finding that such a differential in yields has existed for a sustained period indicates that the benefits of Fannie Mae’s and Freddie Mac’s agency status have been passed through to homeowners with conforming mortgages.

It should be noted, however, that the authors’ results do not necessarily mean that the cost to homeowners with conforming loan balances would be only 20 to 35 basis points if Fannie Mae and Freddie Mac were made fully private. If full privatization were to result in less mortgage activity by the privatized Fannie Mae and Freddie Mac and the supply of mortgage credit were to become less elastic, the cost of full privatization to the market that they currently serve would likely be higher.

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<sup>1</sup>[These comments are based on a draft of the Cotterman-Pearce paper. Many of Fannie Mae’s comments are reflected in the final version of the paper. —EDITOR.]

<sup>2</sup>[In their final text, Cotterman and Pearce conclude that 25 to 40 basis points is the “core range of the conforming loan differential” (p. 102 in this volume). —EDITOR.]

It is recommended that the authors further explore the role of the greater liquidity associated with conforming loans in general and especially Fannie Mae and Freddie Mac MBS in particular, in explaining the conforming/nonconforming loan rate differential. Lenders realize that Fannie Mae and Freddie Mac are always in the market for conforming loans regardless of market or economic conditions. As such, lenders know that a conforming loan can be sold to them at a “fair” price. Similarly, the agency status afforded Fannie Mae and Freddie Mac securities, and the size of the market for these securities, enhances considerably the liquidity of these securities, and thus improves their price.

As performance of the financial market over the past few years—and especially this past year—demonstrates, the “liquidity premium” associated with various securities can vary considerably with market conditions. In relatively stable and quiet markets, for example, investors may be more willing to trade off liquidity for a smaller yield premium than when markets are volatile and/or economic conditions change dramatically. If the liquidity premium on conforming versus nonconforming loans varies over time, as is likely, then one might expect (as the authors find) that the conforming/nonconforming rate differential varies over time as well.

To be sure, liquidity and liquidity premiums are difficult to measure. However, as money managers know, liquidity may not seem important until it is needed, at which time it is critical.

## II. THE AMBROSE-WARGA PAPER

This paper attempts to estimate the impact of full privatization on the cost of Fannie Mae and Freddie Mac debt. It further attempts to link this increased debt cost to primary mortgage rates, Fannie Mae’s and Freddie Mac’s cost of capital, and their financial performance. Unfortunately, the authors’ methodology is flawed and their conclusions, therefore, are suspect.

First, the authors’ use of historical monthly return differentials on corporate fixed-income securities versus Agency fixed-income securities to estimate the impact of full privatization on the debt costs is fundamentally flawed. The result—that Fannie Mae’s or Freddie Mac’s debt costs would rise by 100 to 200 basis points if their rating were changed to ‘AA’ or ‘A’ status—is sharply higher than Wall Street estimates. We believe that the authors vastly overstate the increase in debt costs associated with full privatization. (For example, as of November 18, 1994, for a 5-year non-callable new issue note, Fannie Mae new-issue par yields were 16 to 21 basis points below an ‘AAA’ corporate issue, 25 to 31 basis points below an ‘AA’ issue, and 30 to 38 basis points below an ‘A’ issue).

One reason for the wide disparity between the authors’ empirical findings (by themselves somewhat questionable, in part because of data problems) and Wall Street estimates of the increase in debt costs associated with full privatization is related to the authors’ use of historical return differentials versus the Street’s use of yield spreads. *Historical return* differentials measure *historical performance* differences, while *current yield spreads* measure *current estimates of future debt-cost* differentials. One possible explanation for the authors finding the historical return differentials so high

is that during each year of the sample period, Fannie Mae's financial results were better than anticipated, helping to produce a downtrend in Fannie Mae/Treasury and Fannie Mae/corporate yield spreads. This downtrend caused historical returns on Fannie Mae debt to outperform a random sample of other financial institution debt.

Second, and more important, the authors' transmission mechanism from full privatization to mortgage rates occurs solely through an increase in the debt costs. The authors posit—with virtually no supporting evidence—that the impact of full privatization on MBS yields would be “limited.” Indeed, the authors offer little discussion of the impact of full privatization on MBS markets, guaranty fees, likely changes in Fannie Mae's and Freddie Mac's capital structure, or any such matters that are critical to estimating the impact of privatization on mortgage rates to homeowners.

The authors also imply that the extent to which mortgage rates would rise under full privatization would depend almost entirely on the increase in the debt costs and the amount of mortgages held in portfolio relative to mortgages securitized. Thus, they come to the rather strange conclusion that if Fannie Mae were made fully private, mortgage rates might rise by 20 to 43 basis points, while if Freddie Mac were made fully private, mortgage rates might rise by 6 to 13 basis points—with the different impact occurring because Fannie Mae holds a greater proportion of mortgages in its retained portfolio than does Freddie Mac. Clearly this cannot be right.

In fact, of course, full privatization would affect mortgage rates through higher guaranty fees and/or increased use of credit enhancements—the cost of which would be passed on to homeowners—and through higher MBS yields to investors, as investors would likely require a somewhat higher yield on the less liquid non-agency MBS. These issues are not discussed in the paper.

Third, the authors assume that Fannie Mae and Freddie Mac would not alter either their capital structure or the proportion of mortgages funded with debt, even if their debt costs rose by 100 to 200 basis points. Clearly, if the debt costs rose by this amount but MBS yields did not rise at all, their portfolio business would no longer be profitable, the amount of their debt outstanding would plunge, and their capital structure would change.

Indeed, the authors' assumption of a constant capital structure despite full privatization and a substantial (albeit overstated) rise in their debt costs is a major flaw in the authors' analysis. The authors virtually ignore the capital backing the MBS side of Fannie Mae's and Freddie Mac's business; they do not discuss how making Fannie Mae and Freddie Mac fully private might affect their portfolio activity, and they do not discuss how any such changes in their behavior might affect their capital structure. These omissions call into question virtually all of the authors' conclusions about how full privatization might affect Fannie Mae or Freddie Mac.

The Ambrose-Warga paper also omits discussion of the extent to which privatization might affect liquidity of the mortgage market both regionally and nationally. The credit “crunch” that devastated much of the commercial real estate loan market and construction loan market during the late 1980s and early 1990s was virtually unseen in the single-family conforming loan market in large



part because of the liquid secondary market available to lenders. The single-family home mortgage market would not have been so insulated from this credit crunch had Fannie Mae and Freddie Mac been fully private.

As a related matter, their analysis should include an examination of the extent to which the real estate weakness experienced in the Northeast a few years ago and more recently in California would have been more severe had Fannie Mae and Freddie Mac been made fully private and, like some private conduits, simply decided not to lend in these areas. Further, it should examine how full privatization might have affected mortgage loan rates and mortgage credit availability across regions.

Although Fannie Mae's and Freddie Mac's contribution to overall market liquidity may be difficult to quantify, the difficulty of its analysis cannot justify its omission from this discussion. It is a fundamental component of the issue.

## RESPONSE TO DISCUSSANTS

Brent W. Ambrose and Arthur Warga

### I. RESPONSE TO JAMES D. SHILLING'S COMMENTS

In his discussion of our paper, Mr. Shilling makes some good points about the need to step back and put even more perspective on our results. He is correct in pointing out that using realized returns from a recent period requires the reader to assume that this period (1991–94) can provide reasonable expectations of future returns, and cannot be characterized as a period of unexpectedly high returns to Fannie Mae and Freddie Mac bonds. Because it appears that historically this recent period is one of high returns, our results based on the GSEs' bond returns over this period should be considered upper limits for our estimates of increased debt financing costs they would face in a totally privatized environment.

Moving on to our “reality” check of the results based on bonds alone, we calculated weighted-average cost of capital estimates in a manner quite independent of the previous analysis of which Shilling is critical, and come up with similar results. This is especially surprising given the fact that our modeling approach in this section employs data only from the 1985–91 period. Criticism of our work here rests on the fact that Shilling does not view the banks and other finance companies in our sample as appropriate benchmarks for what the GSEs might resemble when privatized. Obviously the choice of benchmark drives the results, and determining the appropriate benchmark is debatable. Unfortunately, no suggestions are offered on alternative benchmarks and no reasons offered for why our benchmark choice is inappropriate. Our choices were determined by trying to construct a portfolio with an average rating of ‘A,’ and to employ firms that are (largely) characterized by high debt-to-equity ratios. Banks and financial institutions are the *only* candidates, and a well-diversified portfolio of them leaves us immune to criticism that a subset might not resemble the GSEs in the future. Then again, could anyone have predicted what GE Capital would have looked like back when their main concern was easing the borrowing chores of appliance buyers?

One last point about our methodology. If we had not developed the techniques we used in analysis of the GSEs' bond yield and return spreads, our estimates of yield spreads would have been much larger than what we provided in our Table 3. Table A shows that historical average yield spreads between the publicly available (and widely followed) Lehman Brothers Agency Bond index and the Lehman Brothers ‘A’ Bond index over the two sample periods we examine. Both figures exceed 100 basis points. In contrast, we calculated yield spreads controlling for maturity, liquidity, and tax effects and find results substantially smaller (‘AA’ spreads are also above 100 basis points, ‘AAA’ spreads around 70 basis points).

Our bottom-line conclusion about mortgage interest rates rising between 14 and 29 basis points seems reasonable to us. We will not argue with the contention that other events and circumstances might change this prediction. After all, no one is arguing (thus far) that privatizing Fannie

Mae and Freddie Mac will actually lower mortgage rates, and so all parties seem to agree that we have bounded the potential effects to within 30 basis points. There are limits to modern economic theory and empirics, and kicking the ball between zero and 30 basis points is where we leave the game.

**TABLE A**

**Yield Spreads**

			1985-1994	1991-1994
'AAA' Bond Agency	Mean		0.739	0.721
	Std. Dev.		0.315	0.154
	N		114	43
'AA' Bond Agency	Mean		1.075	1.005
	Std. Dev.		0.369	0.225
	N		114	43
'A' Bond - Agency	Mean		1.237	1.043
	Std. Dev.		0.438	0.162
	N		114	43

**II. RESPONSE TO DOUGLAS O. COOK'S COMMENTS**

With regard to Mr. Cook's comments, he is correct in mentioning a number of desirable refinements with regard to our work on the GSEs' debt costs. Unfortunately data restrictions (mainly) and time constraints prevented us from following a more involved analysis. Cook expresses some concern with our modelling approach in calculating the weighted average cost of capital, and the need to embellish the market model with an interest-rate factor. It is important to remember that the index we employ is specially created to have a mix of debt and equity that is representative of the economy's. This means that the model can capture many effects that previous users of market models are incapable of capturing. In particular our market model should be able to capture interest-rate sensitivity that could not be captured in previous work employing stock-only market indices. Whether the model we use does in fact capture interest-rate sensitivity properly is a question for future research.

Cook also mentions as "troubling" the fact that stock and bond betas both increase when using our WACC (weighted average cost of capital) index relative to an equity-only index. What the reader must keep in mind is that the expected return to an equity-only index is substantially higher than the expected return to a mixed index of stocks and bonds, and so the result is expected.

In commenting on our analysis of the impact of privatization on mortgage rates, Mr. Cook speculates on what the dynamics of privatization might look like if one were freed from the assump-

tions we make about increased financing costs being passed onto the mortgage holder. Of course, this is the million dollar question, and we do not even try to answer it. Make no mistake—our analysis is focused on a very narrow issue. We are only able to estimate increased mortgage rate effects under the assumption that financing costs are transmitted by the markets through to mortgage holders. This is a goal we believe we have made some methodological and practical steps toward achieving.

### III. RESPONSE TO THE FANNIE MAE REVIEW

Fannie Mae's criticism of our examination of return and yield spreads on Agency bonds is incorrect on several fronts. First, Fannie Mae contends that our estimates of the yield and return spreads are overstated relative to "Wall Street estimates." However, this criticism misses the point of our analysis that one must control for a variety of factors including coupon, maturity, and duration to capture differences in liquidity and tax effects on various bonds. Thus Fannie Mae's ad hoc analysis of one data point (November 18, 1994), comparing the yield spread on Fannie Mae debt relative to other corporate issues, is suspect unless the analysis is carried out in a manner similar to our analysis, which controls for factors that may produce differences in yields and returns. In addition, by examining other dates it is quite possible to find examples of yield and return spreads greater than the spreads reported in our analysis (see Table A in our response to Shilling).

Fannie Mae's second criticism concerns use of historical return and yield differences. Fannie Mae's explanation for the high return differential, while plausible, is only one possible story. Another equally plausible story is that the high historical return differences were the result of Fannie Mae increasing its risk exposure by increasing the size of its mortgage portfolio during this period.

It is important to realize that we do not make the claim that GSEs' debt costs would rise between 100 and 200 basis points based solely on the analysis of historical return and yield spreads. As a reality check on our results, we also estimated the effect of privatization using an independent method (the weighted average cost of capital) to arrive at results that are consistent with the results based on the analysis of the spread differences.

Fannie Mae's criticism of our estimates of the effect of privatization on mortgage interest rates is also troubling. Using the results from the spread differences and the weighted average cost of capital, we suggest that interest rates might rise between 20 and 43 basis points. While one may argue that our analysis is not precise, it is striking to compare our estimates with the estimates obtained by Cotterman-Pearce, who find a 20- to 35-basis-point rise in interest rates using, again, a third independent method. We find it interesting (and comforting) that three independent methods arrive at relatively the same point.

Finally, Fannie Mae's criticism that our paper ignored the implications of the GSEs' altering their current operations as a result of privatization is valid. However, the true structure would be relatively impossible to predict, given the countless possibilities that might result from privatization.



**THE PRIVATIZATION OF FANNIE MAE AND FREDDIE MAC:  
IMPLICATIONS FOR MORTGAGE INDUSTRY STRUCTURE**

**Benjamin E. Hermalin  
Dwight M. Jaffee**



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*Commentaries on the March 6, 1995 draft of this paper by Herbert M. Kaufman and Lawrence J. White and Fannie Mae's review of the draft paper begin on pages 303, 305, and 314, respectively. The authors' response begins on page 333.*

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*Mr. Jaffee has received research funding from Fannie Mae in the past. Mr. Hermalin has neither had a prior nor current relationship with Fannie Mae or Freddie Mac.*

*The Hermalin-Jaffee paper was submitted in draft form on March 6, 1995 and was presented in a seminar at the U.S. Department of Housing and Urban Development on May 1, 1995. The written commentaries by Mr. Kaufman and Mr. White were submitted on May 11, 1995 and June 11, 1995, respectively, and the Fannie Mae Review was submitted on June 30, 1995. Hermalin-Jaffee then slightly revised their paper; they submitted their final manuscript on July 24, 1995 and their Response to Discussants on September 15, 1995.*





## EXECUTIVE SUMMARY

In this report we analyze the effects of privatizing the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) with regard to the possible changes it would create in the structure, performance, and welfare benefits of the secondary mortgage markets. The primary tool we use in this analysis is applied industrial organization theory.

We begin with an analysis of the conduit market as it currently exists. We divide the market into three segments: securitization of FHA/VA loans, securitization of conforming loans, and securitization of jumbo loans. Our analysis focuses on the latter two segments only. Our conclusions concerning the current structure are as follows:

- (1) There are strong theoretical reasons and reasonable empirical evidence for believing that Fannie Mae and Freddie Mac are tacitly colluding<sup>1</sup> duopolists in the conforming segment of the conduit market.
- (2) There are strong theoretical reasons and strong empirical evidence for believing that the jumbo segment of the conduit market (from which Fannie Mae and Freddie Mac are barred) is competitive.
- (3) Fannie Mae and Freddie Mac are able to sustain their duopoly in the conforming segment because there are barriers to entry into this segment. Most of these barriers are a consequence of Fannie Mae's and Freddie Mac's status as government-sponsored enterprises (GSEs).
- (4) The other "players" in the markets (e.g., the buyers of mortgage-based securities and mortgage originators) have no market power.
- (5) The close substitutes for mortgage-based securities (e.g., securities based on FHA/VA loans) limit the spread that Fannie Mae and Freddie Mac can enjoy despite their duopoly.

We next address the competitive advantages and disadvantages of Fannie Mae and Freddie Mac. In addition to the aforementioned barriers to entry, we study whether Fannie Mae and Freddie Mac enjoy economies of scale, whether the lack of effective competition may have made them soft, and whether they would have or could acquire sufficient capital were they privatized. Although the empirical evidence does not allow definitive conclusions, we derive issues that would need to be considered were Fannie Mae and Freddie Mac privatized.

We also consider the issue of vertical integration, that is, mergers in which conduits acquire (or are acquired by) mortgage originators or mortgage servicers or both. Although it is theoretically possible that vertical integration could be anticompetitive, we find that the evidence indicates that it would *not* be anticompetitive in these markets. Rather, there seem to be efficiency gains to be realized from vertical integration. Consequently, we would expect Fannie Mae and Freddie Mac to integrate vertically if privatized, and we expect that such integration would be socially beneficial.

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<sup>1</sup> The adjective "tacit" is important: There is no evidence that Fannie Mae and Freddie Mac are colluding *directly*, which would be illegal. Rather they are behaving *as if* they were colluding, which is *not* illegal.

Finally, we consider the welfare (social) benefits of privatization. We begin by analyzing the welfare benefits inherent in the *current* market structures. To deter entry into their market segment, Fannie Mae and Freddie Mac must price in such a way that they are either securitizing the amount of conforming mortgages that a competitive industry would or they are securitizing *more* than a competitive industry would.<sup>2</sup> Under the first alternative, there is no welfare gain from privatizing Fannie Mae and Freddie Mac except for the gain that would be achieved by eliminating the federal government's implicit liability and, thus, the potential need to raise revenues through distortionary taxation. (Rough calculations indicate that the *annual* welfare cost from the government's implicit liability ranges from \$210 million to \$1.26 billion.) Under the second alternative, there would be welfare gains from privatizing, as this would restore the market to its welfare-maximizing level. In addition, the welfare gain from eliminating the implicit guarantee would also be realized. It is worth noting, however, that homebuyers could face higher mortgage rates following privatization if the second alternative is the correct one.

A possible problem with the previous analysis is that it is static; that is, it does not account for structural changes in the industry following privatization. There are two possible scenarios. One, the two market segments would come to resemble the current jumbo segment, which would mean that they would both be competitive. Alternatively, both segments would come to be dominated by a few large firms (including, possibly, Fannie Mae and Freddie Mac). Which scenario will occur depends on the extent to which there are economies of scale in the conduit industry. The current evidence from the jumbo segment suggests that there are not, which makes the first scenario more likely. This conclusion needs, however, to be tempered by the realization that Fannie Mae and Freddie Mac currently operate at a scale that is an order of magnitude greater than any private-label (jumbo) conduit. It is possible, therefore, that there are economies of scale but the jumbo market is too small to reveal them. Even if there are significant economies of scale and, therefore, the industry becomes dominated by a few large firms, this need not be welfare reducing vis-à-vis the current situation: The extension of economies of scale to the jumbo segment will lower costs in that segment, which is welfare enhancing, while the number of firms in the conforming segment either will be unchanged or will increase, which is either welfare neutral or welfare enhancing. We conclude, therefore, that this dynamic analysis is complementary with our static analysis, in that both suggest that privatization would be socially beneficial.

The final welfare question we address concerns whether there are market imperfections that would prevent a fully privatized industry from operating efficiently. Our theoretical analysis, coupled with the success of the private jumbo conduit segment, strongly indicates that market imperfections are unlikely to be a problem and that, therefore, we can expect a fully privatized industry to operate efficiently.

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<sup>2</sup> The "traditional" problem of market power—that producers produce too little—is unlikely because then Fannie Mae and Freddie Mac would be pricing in a way that would encourage entry into the conforming segment of the conduit market.

## PART I. INTRODUCTION

The Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation, hereafter Fannie Mae and Freddie Mac, respectively, have the current status of government-sponsored enterprises (GSEs). As such, they enjoy certain advantages over competitors in the secondary mortgage markets, most importantly the perception of an implicit federal guarantee against default on bonds or securitized mortgage instruments issued by Fannie Mae and Freddie Mac. At the same time, Fannie Mae and Freddie Mac operate under various legal constraints, most importantly that they may hold and securitize only “conforming” residential mortgages (a subset of all mortgages) and that they may not vertically integrate with their suppliers (such as mortgage originators, servicers, and insurers). It has been proposed, however, that Fannie Mae and Freddie Mac be “privatized,” meaning (at least in most interpretations) that they would lose the implicit federal guarantee on their liabilities, but also be released from the constraints on their allowed activities.

Privatization of Fannie Mae and Freddie Mac is likely to have important effects on the mortgage industry, given the dominant role they play in the secondary mortgage markets. Most importantly, the industrial organization of the industry may change significantly, with possible ramifications for the degree and nature of competition in the industry. These changes in turn may have critical implications for the welfare of the end users of the secondary mortgage markets, both borrowers and investors.

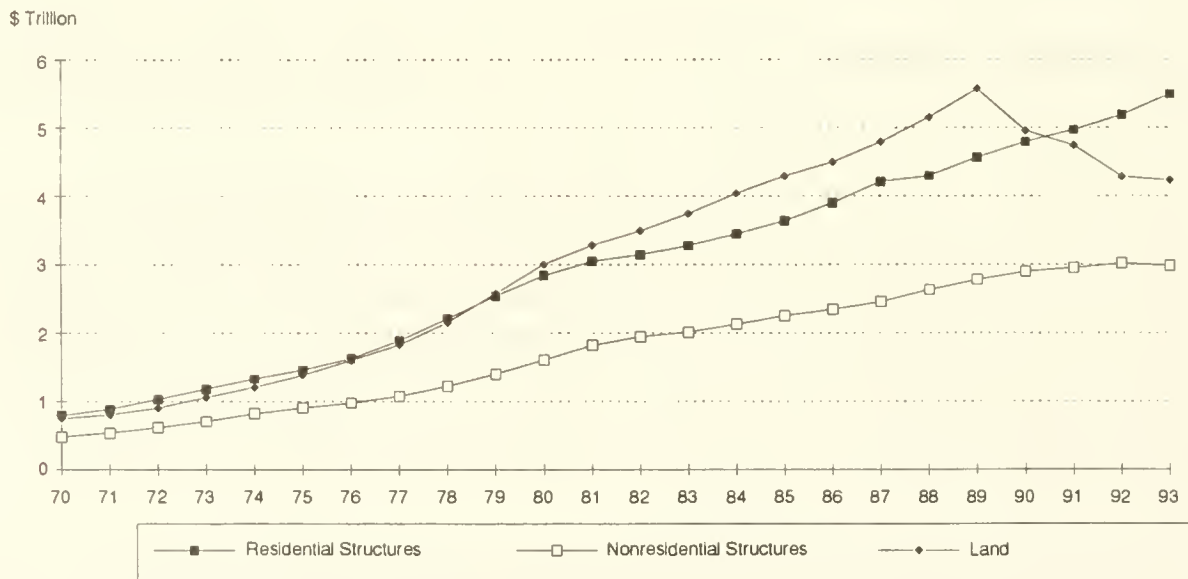
In this report we analyze the effects of privatizing Fannie Mae and Freddie Mac with particular regard to the possible changes it would create in the structure, performance, and welfare benefits of the secondary mortgage markets. Given the importance of the mortgage market within the U.S. economy and the importance of Fannie Mae and Freddie Mac within the mortgage industry, the privatization of Fannie Mae and Freddie Mac would be without precedent in U.S. financial and economic history. To be sure, the deregulation of the airline industry and the separation of the AT&T operating companies involved industries of perhaps comparable importance, but the firms involved were already fully operating in the private sector. Thus, although we will take advantage of the experience gained from these and other changes in major industries, the privatization of Fannie Mae and Freddie Mac would be unique in many dimensions.

The primary tool we use in analyzing Fannie Mae and Freddie Mac privatization is “applied economic theory.” Economic theory refers here to economic models of firm interaction in markets that vary in terms of the degree of concentration, ease of entry and exit, and related structural aspects. *Applied* economic theory refers to the behavioral predictions that may be developed from the economic models on the basis of the structure of the mortgage markets as they currently exist and are likely to (or may possibly) evolve as a result of Fannie Mae and Freddie Mac privatization. In short, we see our task as one of applying the available economic theory to the existing U.S. mortgage markets.

**FIGURE 1**  
**Tangible Wealth and Real Estate Wealth**



**FIGURE 2**  
**Components of Real Estate Wealth**





To begin, in the remainder of this introduction we present a statistical overview of the importance of residential housing in the U.S. economy, the importance of the mortgage market to the housing market, and the importance of Fannie Mae and Freddie Mac to the mortgage market.

## 1.1. Real Estate Markets and the U.S. Economy

Real estate constitutes one of the most important sectors of the U.S. economy. This is illustrated in Figure 1, which shows that the value of total real estate in the United States in current dollars at year-end 1993 (the most recent data available) was about \$13 trillion.<sup>3</sup> In comparison, the total tangible wealth of the United States at that time was about \$19 trillion, so that real estate wealth represents more than two-thirds of total tangible wealth.<sup>4</sup>

On a flow basis, new real estate construction in the United States is generally less than 10% of the total gross national product (GNP). The lesser importance of real estate activity on a flow basis is a result of the highly durable nature of real estate assets. In other words, even if 8% of GNP is allocated to real estate construction each year, the cumulative effect is that real estate represents about two-thirds of the country's tangible assets.

The total real estate wealth can be divided into three components: residential structures, nonresidential structures, and land. As illustrated in Figure 2, residential structures are the largest component, about \$5.5 trillion at year-end 1993. Furthermore, if we include land associated with residential structures, the total for residential real estate (that is, residential structures and land) is close to \$8 trillion, or almost two-thirds of total real estate wealth.<sup>5</sup> Fannie Mae and Freddie Mac operate only in the residential mortgage market, so residential real estate assets are the proper baseline for their mortgage market activity.

## 1.2. Mortgage Markets and U.S. Capital Markets

Mortgage markets are one of the most important parts of U.S. capital markets. As illustrated in Figure 3, mortgage claims totaled more than \$4 trillion at year-end 1993. This was exceeded only by the total value of corporate equities (about \$6 trillion) and U.S. government debt (about \$5 trillion) as components of total capital market claims.<sup>6</sup> Furthermore, as illustrated in Figure 4, home (1–4 family) mortgage claims outstanding at year-end 1993 totaled more than \$3 trillion, or about

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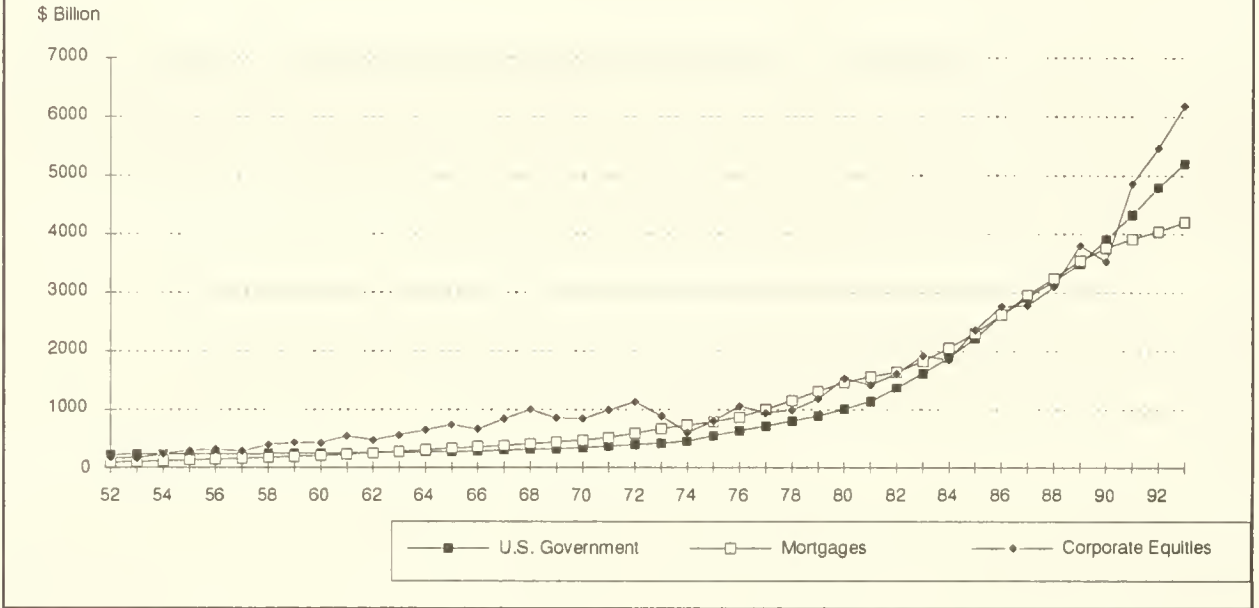
<sup>3</sup> The source of data for Figures 1 and 2 is *Survey of Current Business*, U.S. Department of Commerce, various issues, under the topic "tangible capital wealth of the United States."

<sup>4</sup> Tangible wealth covers all physical assets in a country, including business plants and equipment, consumer durables, residential real estate, and corresponding government assets. It excludes financial assets because, although each financial instrument is an asset for one agent in the economy, it is also a liability for another agent (except for foreign holdings).

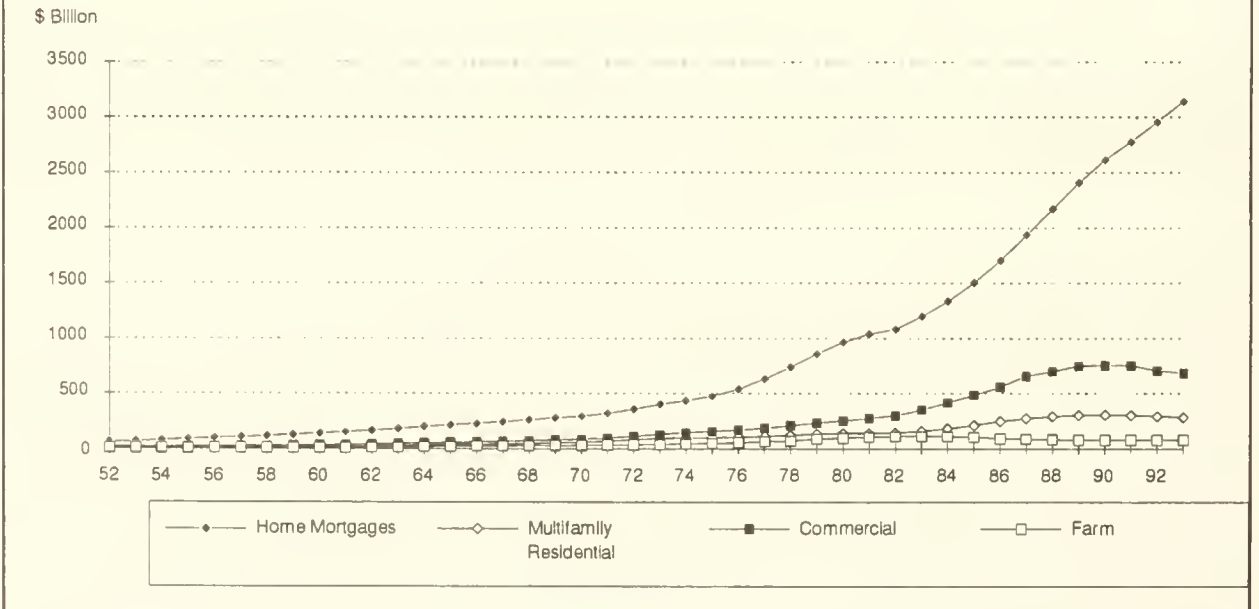
<sup>5</sup> The decline in land prices starting in 1989 was no doubt part of the general real estate collapse that took place in the United States at that time.

<sup>6</sup> The data source for Figures 3 to 8 is Flow of Funds Accounts, Board of Governors of the Federal Reserve System.

**FIGURE 3**  
**Financial Claims**



**FIGURE 4**  
**Mortgage Claims**



three-fourths of total mortgage claims. This is the primary market for Fannie Mae and Freddie Mac activity.<sup>7</sup>

### 1.3. Holdings of Home Mortgages

Figure 5 shows the distribution of 1–4 family home mortgage holdings. By 1994–3 (third quarter of 1994), just under 50% of total home mortgages were backing mortgage pools. Direct mortgage holdings of financial intermediaries (FIs) are currently the next largest share, just over 30%. FI holdings approached 90% of the total during the 1950s but declined sharply beginning in the late 1960s.<sup>8</sup> Direct holdings of individuals and of Fannie Mae, Freddie Mac, and the Government National Mortgage Association (Ginnie Mae) (collectively designated “Agencies” in the figure) round out the total, each with about 10%.

### 1.4. Agency Activity in Home Mortgages

The Agencies’ role in the mortgage market consists of two parts: direct holdings and mortgage pools. Figure 6 shows Fannie Mae’s, Freddie Mac’s, and Ginnie Mae’s positions in the first of these parts, direct holdings. It can be seen that Fannie Mae has the dominant position here, a total of \$160 billion as of 1994–3. Freddie Mac’s holdings as of 1994–3 are smaller, about \$60 billion, although their growth rate has been more rapid in recent years. Ginnie Mae’s holdings are now negligible, although they were more important in the early 1970s.

Figure 7 shows 1–4 family mortgage pools by issuer. Fannie Mae, Freddie Mac, and Ginnie Mae each have about \$500 billion in pools outstanding by 1994–3, with Fannie Mae currently the largest. Privately issued pools are substantially lower, about \$200 billion at 1994–3. The growth rate of the privately issued pools, however, has been the most rapid during the 1990s.

The total mortgage market contribution of Fannie Mae, Freddie Mac, Ginnie Mae, and private pool issuers can be evaluated by combining their direct holdings and their mortgage pool activity. Figure 8 shows that, as of 1994–3, Fannie Mae has the largest contribution to the secondary mortgage market (close to \$700 billion), followed by Freddie Mac (more than \$500 billion) and Ginnie Mae (close to \$450 billion).

### 1.5. Summary

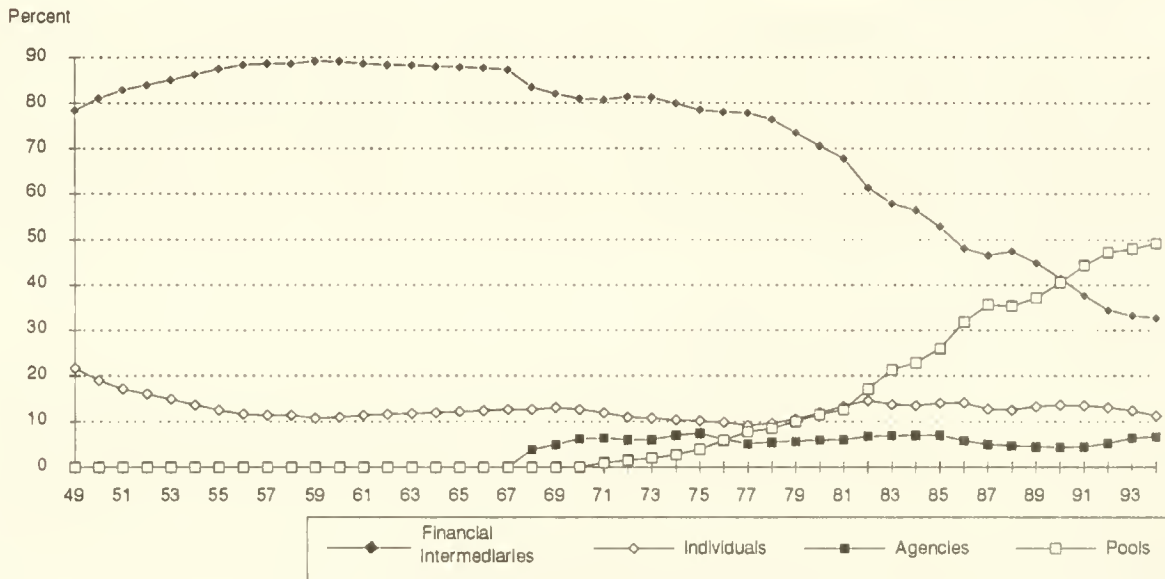
The above discussion has indicated the key importance of Fannie Mae and Freddie Mac within the residential mortgage market. The value of U.S. residential real estate is almost \$8 trillion

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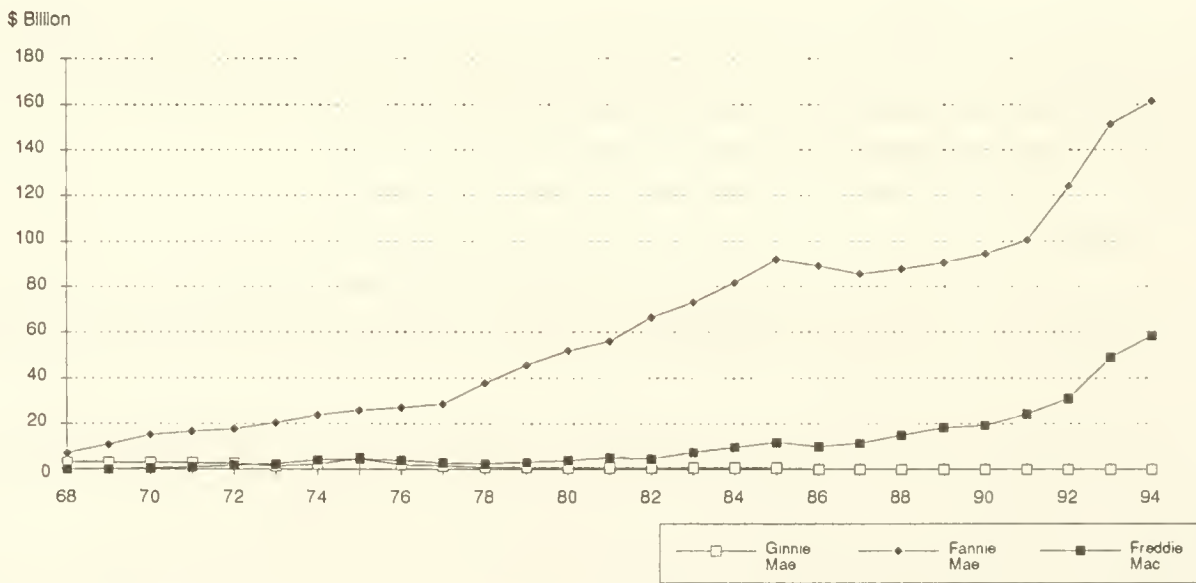
<sup>7</sup> Fannie Mae and Freddie Mac also operate in the multifamily mortgage market. Their penetration in the multifamily market, however, is quite small, and the multifamily market in turn is a small part of the overall mortgage markets (as shown in Figure 4). Consequently, we focus on the home (or 1–4 family) mortgage markets in this part.

<sup>8</sup> Figure 5, however, exaggerates the decline in financial intermediary participation in the mortgage market, because the intermediaries are the single largest holders of mortgage pool instruments.

**FIGURE 5**  
**1-4 Family Mortgages as a Percentage of Total**

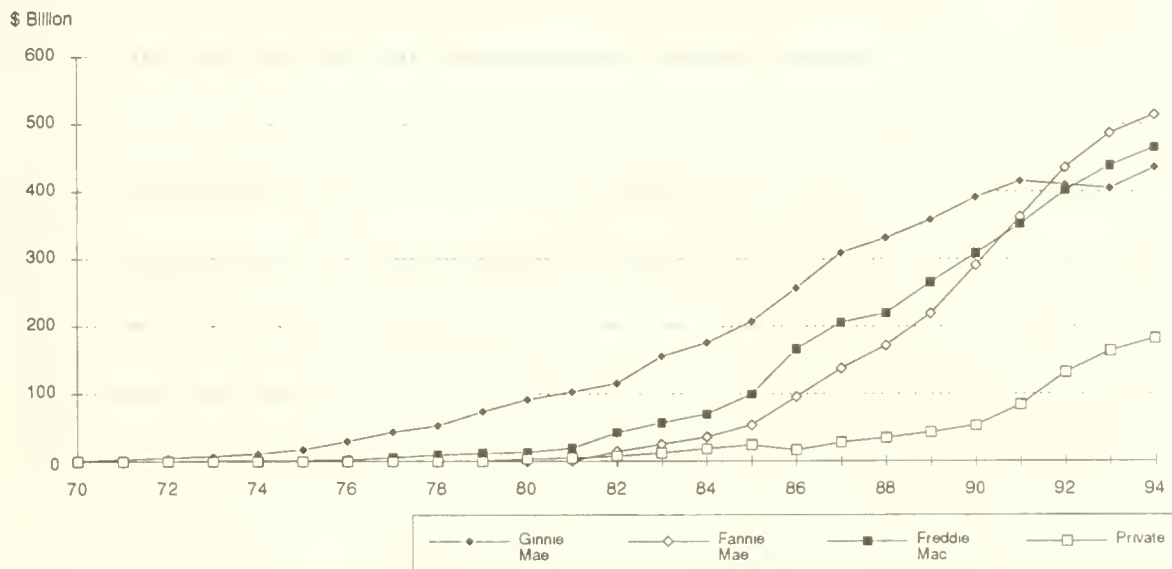


**FIGURE 6**  
**Agency Mortgages Held**

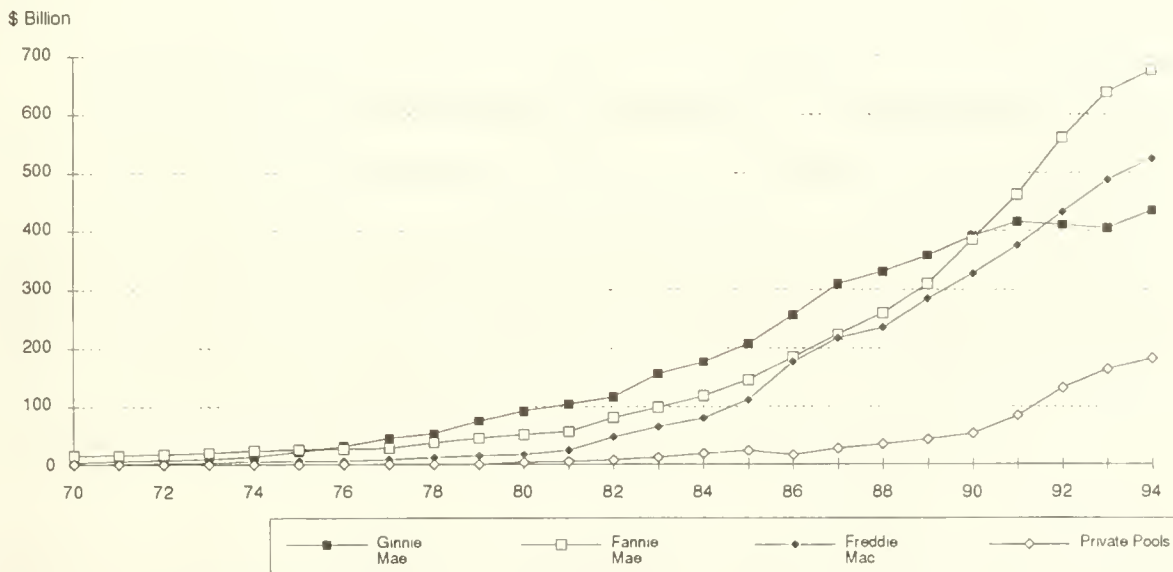




**FIGURE 7**  
**1-4 Family Pools Issued**



**FIGURE 8**  
**Mortgage Holdings and Pools Issued**



or approximately 40% of the country's tangible capital wealth. Home mortgages total more than \$3 trillion, and Fannie Mae and Freddie Mac together participate in well over \$1 trillion through direct holdings and mortgage pools. Fannie Mae and Freddie Mac thus participate in about 40% of the total home mortgage market in the United States. Furthermore, Fannie Mae and Freddie Mac are legally restricted to the *conforming* home mortgage market, in which their share is about 50%, as we shall discuss in the next part.

## 1.6. Agenda for Remainder of Report

The agenda for the remainder of the report is as follows. Part 2 provides a detailed review of the current state of U.S. secondary mortgage markets, focusing on the role of Fannie Mae and Freddie Mac, including their suppliers (originators, servicers, and insurers) and their customers (final investors). Part 3 evaluates the advantages maintained by Fannie Mae and Freddie Mac and the disadvantages imposed on them, given the current structure of U.S. mortgage markets. Part 4 analyzes possible trends in vertical integration of the mortgage markets that might occur following Fannie Mae and Freddie Mac privatization. Part 5 considers the possible structure of the secondary mortgage market after Fannie Mae and Freddie Mac privatization, including changes in the degree of competition and the welfare effects thereof. Part 6 provides a summary of our conclusions.

## PART 2: SECONDARY MORTGAGE MARKETS CURRENTLY

To assess the consequences of privatizing Fannie Mae and Freddie Mac, it is necessary to understand first the secondary mortgage markets as they now exist. This involves a careful industrial organization analysis of these markets. This section represents such an analysis. We begin in Section 2.1 with an examination of what the relevant markets are and how they might best be studied. As we discuss in that section, analyzing any market requires dividing up the analysis into six parts: the competitors, their buyers, their suppliers, potential entrants, substitute goods, and government regulation. Sections 2.2 through 2.7 contain these analyses. Section 2.8 concludes and summarizes Part 2 of this report.

### 2.1. Market Definitions and Our Approach to Market Analysis

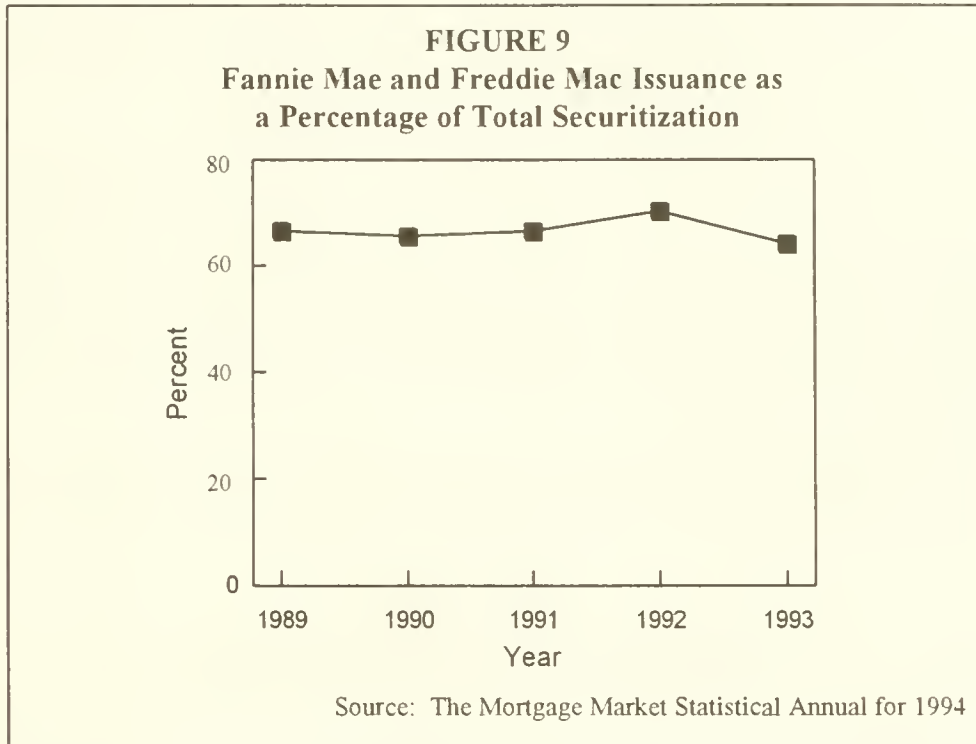
#### *(1) Market Definitions*

When Coca-Cola sought to defend its proposed acquisition of Dr. Pepper against antitrust objections, it argued that the relevant market was all beverages, not just carbonated soft drinks. Market definition clearly mattered in this case. If the market is all beverages, then Coca-Cola is a large, but hardly dominant player; if, however, the market is carbonated soft drinks, then Coca-Cola is one of two dominant players that, combined, would have had an 80% market share.<sup>9</sup> An analogous situation exists with secondary mortgage securities. If we look at Fannie Mae and Freddie Mac's

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<sup>9</sup>This 80% figure also includes Pepsi's then-proposed acquisition of Seven-Up. Both Coca-Cola acquisition of Dr. Pepper and Pepsi's acquisition of Seven-Up were subsequently disallowed on antitrust grounds. See Greer (1993).

share of *total* securitization, it is 65% of all securitizations of home mortgages, an amount, moreover, that has been declining somewhat in recent years—see Figure 9.<sup>10</sup> As a point of comparison, this concentration ratio is slightly smaller than the two-firm concentration ratio for the beer industry.<sup>11</sup> On the other hand, if we define the market as the securitization of conventional (i.e., non-FHA/VA),<sup>12</sup> conforming mortgages, then Fannie Mae and Freddie Mac together represent virtually 100% of that market. Unfortunately, unlike the case of Coca-Cola, the appropriate market definition in this context is less clear cut.



There are at least two reasons why we might be wary about defining the market to be the securitization of all home mortgages. First, the legal distinction between conforming and jumbo (nonconforming) mortgages has effectively divided the market, in the sense that there is essentially no overlap in the firms competing in each division. Second, the federal guarantees on FHA and VA mortgages can be seen as making them distinct products vis-à-vis conventional mortgages. Consequently, when we want to analyze the secondary markets as they exist *today*, the best approach is to consider the three types of mortgages—FHA/VA, conventional conforming, and conventional jumbo—separately.

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<sup>10</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

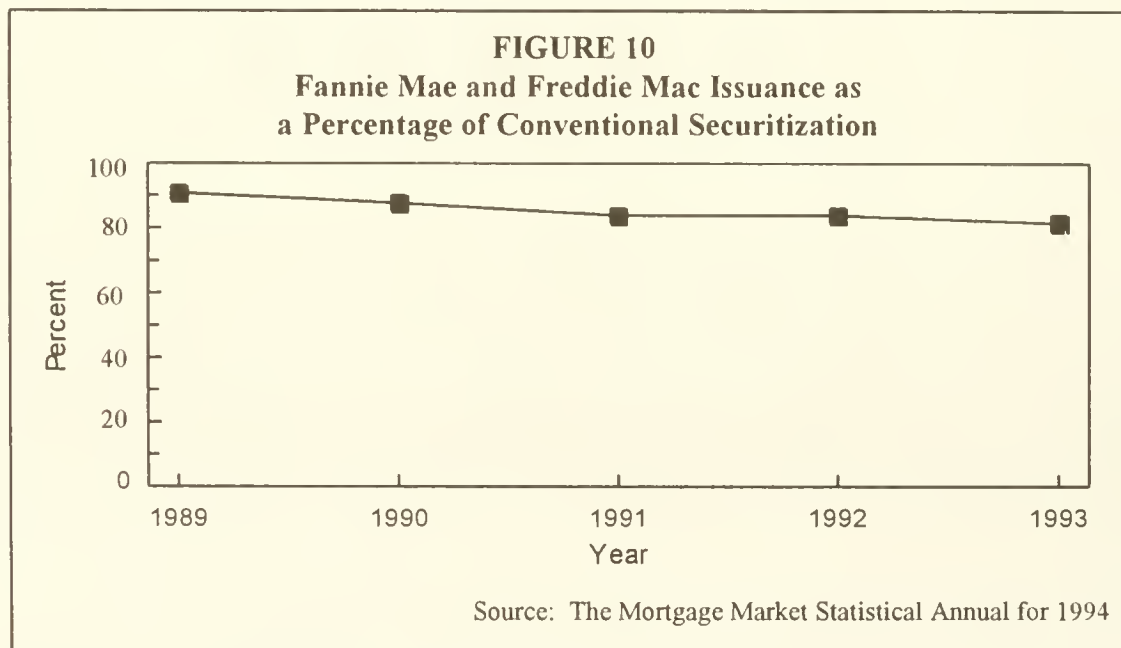
<sup>11</sup> The two-firm (Anheuser-Busch and Miller) concentration ratio for the beer industry was 67.3% in 1990. See Greer (1993).

<sup>12</sup> FHA: Federal Housing Administration. VA: Department of Veterans Affairs.

On the other hand, when we want to analyze the secondary markets *after* privatization, the distinction between conforming and jumbo mortgages is less pertinent: Presumably one consequence of privatization would be that Fannie Mae and Freddie Mac could securitize jumbo mortgages. Moreover, there is evidence that they might wish to do so if permitted: Fannie Mae and Freddie Mac securitize mortgages right up to the conforming mortgage limit and continue to do so as the conforming mortgage limit increases over time.<sup>13</sup> That is, their behavior strongly suggests that the conforming mortgage limit is a binding constraint for them; hence, absent that constraint, they would securitize mortgages that are currently over the limit. In addition, elimination of Fannie Mae's and Freddie Mac's GSE status could make credible the entry of private-label conduits into the securitization of conforming mortgages. For these reasons we will tend to treat the conventional market as one when considering the secondary markets in the *future* (post-privatization).

Although, as we have argued, treating the jumbo and conforming conduit markets as a single market is not sensible *today*, it is nevertheless instructive to consider Fannie Mae and Freddie Mac's share of this market in recent years. As Figure 10 shows, the GSEs' share of this market has been falling steadily over the past 5 years, from 91% in 1989 to 82% in 1993.<sup>14</sup> Eighty-two percent is still, however, a high concentration ratio. (As a point of comparison, a slightly lower concentration ratio was grounds for the Federal Trade Commission's decision to block two mergers in the carbonated soft drink market—see Footnote 9.)

Given (1) that the scope of this report does *not* include potential changes to Ginnie Mae's status and (2) Ginnie Mae's current and likely future near-monopolization of the FHA/VA market,



<sup>13</sup> See, e.g., Woodward (1987) for evidence.

<sup>14</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.



there seems to be little point to analyzing the FHA/VA market *directly*. We, therefore, do not include such an analysis. This is not to say, however, that we will ignore this market. We will need, for instance, to consider it when we consider substitute securities in our analyses of the conventional mortgage markets.

It is important to stress that this market definition covers *securitized* conventional mortgages, not all *originated* conventional mortgages. All originated conventional mortgages are only the *input* that the conduits use to create security outputs, and a market is properly defined by its outputs, not its inputs. An example can illustrate why it is not proper to include nonsecuritized mortgages in our market definition. Consider the business that stamps auto bodies out of steel. Suppose the steel industry (all products) is competitive, but the auto body stamping industry is monopolized. Surely one would not call the body stamping industry competitive because it buys the raw material from a competitive industry. To the contrary, a competitive steel industry reinforces the profitability of monopolizing the auto body stamping industry.

In our analysis we will not generally differentiate among the types of securities being offered by the conduits. The securities coming out of Ginnie Mae, Fannie Mae, Freddie Mac, and the private labels are virtually identical, to any reasonable approximation. The same is true for the *derivatives* that are based on these securities (e.g., REMICs, CMOs, interest-only and principal-only securities). Admittedly, Fannie Mae and Freddie Mac also purchase mortgages to hold in portfolio and then issue debt against these mortgages, but this, too, is a form of securitization. For the purposes of our analysis, the distinctions among these mortgage-*based* securities are not critical.

In summary, we will take the following approach to defining secondary markets:

- (1) The basis for defining a market will be the type of mortgage being securitized.
- (2) The FHA/VA market will not be dealt with directly; such an analysis lies outside the scope of this report.
- (3) The conventional market will be divided into two markets, conforming and jumbo, when considering the current state of the secondary markets, but will be considered to be a single market when considering the future, post-privatization state of the secondary markets.

## *(2) Our Approach to Market Analysis*

Our approach to analyzing markets is based on Porter's "five-forces model," which we will sketch in greater detail below.<sup>15</sup> Figure 11 illustrates our variant model for the conforming, conventional secondary market. The picture would be identical for the jumbo secondary market, except the conduits would be just the private-label firms. The picture would also be identical if we were considering the post-privatization conventional market, except the private-label firms would be *added* to

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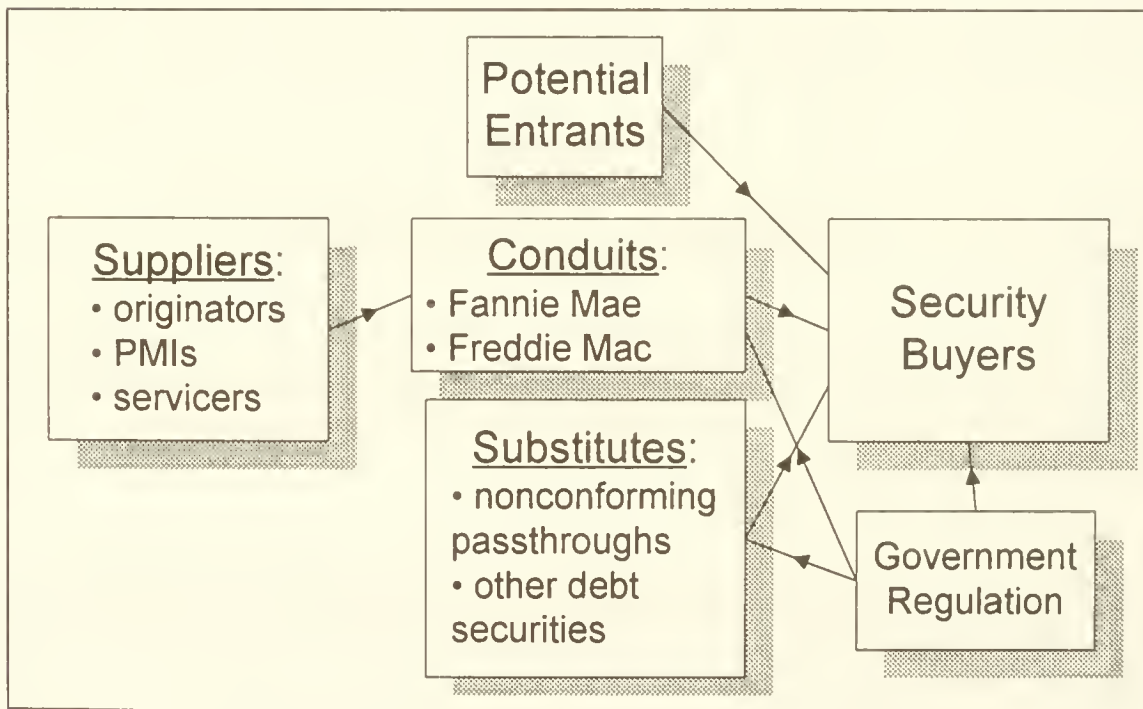
<sup>15</sup> For a more comprehensive introduction to this model, the reader may wish to consult Oster (1994, pp. 31–48).

Fannie Mae and Freddie Mac in our list of conduits. The details on each box are discussed in the following six sections.

Our aims in this analysis are the following:

- (1) To understand the structure of the markets as they *currently* exist and determine the extent to which they approach the ideal of perfect competition.
- (2) To the extent these markets are not perfectly competitive, to identify both what kind of industrial structure (e.g., oligopoly or monopolistic competition) they have and what the welfare loss might be from their departure from perfect competition.
- (3) To determine what current structure suggests about future structure, particularly a future structure in which Fannie Mae and Freddie Mac are privatized.
- (4) To evaluate the welfare consequences of these future structures.

FIGURE 11



## 2.2. The Conduits

### (1) *The Basic Issues*

Analysis of the central box in the Porter framework means examining the rivalry among existing firms. The focus of this examination is to discern the intensity of competition among the rivals or, conversely, the degree to which they may avoid competition.

Before going into the details of this analysis, it is important to define some general terms and concepts. Competition can have many dimensions, of which price, advertising, and research and development are typically the most important. In terms of the conduits, however, neither advertising nor research and development are likely to be important dimensions for competition: Security buyers are sophisticated and therefore unlikely to be influenced by brand image or brand loyalty; that is, advertising is unlikely to affect their decisionmaking. Although research and development is important to the industry as a whole (consider, for example, the innovation of mortgage-backed securities in the 1970s and 1980s or current efforts to streamline mortgage origination), we do not believe that research and development provides significant competitive advantages, because it is difficult to prevent rivals from mimicking product innovations in this market (i.e., the effectiveness of laws protecting intellectual property seems limited).<sup>16</sup> Consequently, when we discuss competition, we will typically be referring to price competition.

The traditional model of price competition is the *Bertrand model*.<sup>17</sup> In the simplest version of this model, rival firms sell a completely homogenous product, have identical and constant marginal cost, have sufficient capacity to serve the entire market, and play myopically (i.e., they do not consider their future competition when setting price today). Moreover, consumers are assumed to have no brand loyalty and consequently will buy from whichever firm charges the lowest price. (If more than one firm is charging the lowest price, consumers randomly choose from which of these firms to buy.) Because they play myopically, firms care only about today's profit. Moreover, because they can capture the entire market by undercutting the price of all their rivals, there is strong downward pressure on price. Indeed, in the unique equilibrium of this game, all firms charge a price equal to marginal cost; that is, the price is driven to the perfectly competitive level. Correspondingly, firms earn zero economic profits. The Bertrand model or variants of this model that yield price at or near marginal cost can be considered to be models of intense price competition.

An objection to the Bertrand model is its assumption that the firms play myopically. A more reasonable assumption is that the firms are concerned about the future as well as the present. The degree to which they care about the future is captured by their *discount factors*: The smaller their

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<sup>16</sup> Admittedly the ability to mimic does not imply the desire to mimic; in particular, smaller firms may not find it cost effective to automate as much as large firms. This, however, is better seen as an economies of scale issue, which we address below in Sections 2.3 and 3.1.

<sup>17</sup> For a comprehensive presentation of the Bertrand model, the reader may wish to consult Chapter 5 of Tirole (1988), although any good intermediate microeconomics text should be adequate.

discount factors, the less they care about the future.<sup>18</sup> Provided the number of firms is not too great and the discount factor is high enough, the firms will be able to escape the Bertrand equilibrium as follows: Each firm, when considering whether to undercut its rivals, will recognize that its rivals can retaliate (i.e., punish) the firm in subsequent periods. Hence, the gain realized today from undercutting rivals and stealing market share must be weighed against the reduction in profits in the future due to retaliation. If the reduction in profits, appropriately discounted, outweighs today's gain, the firm will not undercut. In this way firms can sustain prices above marginal cost in equilibrium. In particular, they can often sustain a price equal to the price that they would have agreed to charge had they been able to collude directly among themselves. For this reason an equilibrium in which firms are able to sustain a price above marginal cost is typically referred to as *tacit collusion*.<sup>19</sup> The adjective "tacit" is important: The firms are not colluding directly—which would be illegal under the Sherman Antitrust Act—they are simply behaving *as if* they were colluding directly. Because they are not colluding directly, there is nothing illegal about tacit collusion.<sup>20</sup> Tacit collusion can thus be seen as the avoidance of competition.

Formally, let  $\pi_C$  be per-period profit from tacitly colluding. Let  $\pi_D$  be the one-period profit from undercutting. Let  $\pi_N$  be the per-period profit from not colluding. Although these quantities should be derived from the underlying model of product-market competition, it is readily apparent that  $\pi_D > \pi_C > \pi_N$ . Finally, let  $\delta$  be the discount factor (i.e.,  $\delta = 1/(1+r)$ , where  $r$  is the interest rate). The firms can sustain tacit collusion if the present discounted value of  $\pi_C$  exceeds  $\pi_D$  plus the present discounted value of receiving  $\pi_N$  for ever after; that is,

$$\sum_{t=0}^{\infty} \delta^t \pi_C \geq \pi_D + \sum_{t=1}^{\infty} \delta^t \pi_N. \quad ^{21}$$

Collusion is possible, therefore, if

$$\delta \geq \frac{\pi_D - \pi_C}{\pi_D - \pi_N} \quad (\text{delta condition}).$$

The greater is this ratio, the more firms must care more about the future (alternatively, the lower the interest rate must be) if tacit collusion is to be sustained; that is, the greater this ratio, the more difficult it is to sustain tacit collusion. Therefore, the greater the profit from colluding, the easier tacit

<sup>18</sup> Typically, discount factors are modeled as  $1/(1+r)$ , where  $r$  is the relevant single-period interest rate; that is, firms discount the future in a manner consistent with finance theory.

<sup>19</sup> For a more comprehensive discussion of tacit collusion see Chapter 6 of Tirole (1988).

<sup>20</sup> To be precise, if the firms undertake certain actions whose purpose is largely to facilitate tacit collusion (e.g., creating a trade association to share price information), then these actions will be held to be illegal. If, however, the firms can sustain their tacit collusion without these actions, then they face no legal sanctions whatsoever.

<sup>21</sup> Note this formulation assumes that once collusion breaks down, there is a price war (or non-collusion) forever after. Collusion can, however, also be supported by a finite-length price war if the discount factor is great enough (there is an inverse relation between the discount factor and the minimum length of the *threatened* price war). For more on this see Chapter 6 of Tirole (1988).



collusion is to sustain, but the greater the profit from undercutting or not colluding in the first place, the more difficult tacit collusion is to sustain.

## ***(2) The Conforming Conduit Market: The Theoretical Case for Tacit Collusion***

In determining the intensity of competition (or, conversely, the ability of firms to collude tacitly), it is helpful to divide the analysis into seven parts:

- (1) Number of competitors.
- (2) Size distribution of market participants.
- (3) Commitment to the market.
- (4) Homogeneity of outputs.
- (5) Capacity.
- (6) Changing conditions of demand and supply.
- (7) Intensity of competition, or, conversely, the scope for tacit collusion.

The seventh part of the analysis is primarily a synthesis of the implications generated by the first six parts of the analysis.

For all intents and purposes, there are only two firms in the market for securitizing conventional conforming mortgages: Fannie Mae and Freddie Mac.<sup>22</sup> Almost all current models of oligopoly behavior would argue that a duopoly should be able to collude tacitly.<sup>23</sup> Indeed, this factor alone is nearly enough to build a prima facie case for tacit collusion.

These two firms have approximately the same market share: The Herfindahl index is 5004.37, which is almost the theoretical minimum for a duopoly (5000).<sup>24</sup> This equality has been fairly stable over the past 5 years, as shown in Figure 12.<sup>25</sup> This stability in market shares suggests that neither firm has made a serious attempt to steal market share from its rival. Such behavior is consistent with

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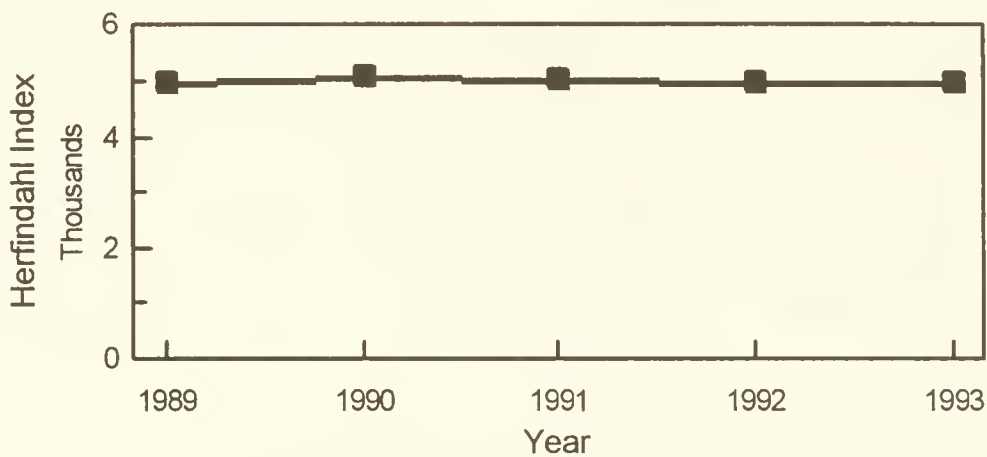
<sup>22</sup> To be precise, there is some securitization of “low-quality” (B, C, and limited-documentation) conforming mortgages by other firms. Muolo (1993) suggests that the total amount of low-quality conforming mortgage securitization was less than \$1 billion in 1993, or 0.2% of the total Fannie Mae and Freddie Mac securitizations for that year.

<sup>23</sup> See, e.g., Chapter 6 of Tirole (1988) for a discussion.

<sup>24</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994. The Herfindahl index, HI, is given by the formula  $HI = 10,000 \times \sum s_i^2$ , where  $s_i$  is the market share of the  $i$ th firm. The greater is HI, the less competitive the industry is considered to be. Note that the Herfindahl index measures a reduction in competitiveness due both to fewer firms and more unequal size distribution: For example, a four-firm industry in which each firm has 25% of the market has a Herfindahl index of 2500, while a four-firm industry in which two firms have 40%, while the other two have 10%, has a higher Herfindahl index of 3400. Note that equal shares minimize the Herfindahl index.

<sup>25</sup> Source: Ibid.

**FIGURE 12**  
**Herfindahl Index, Conforming Market, 1989-1993**



Source: The Mortgage Market Statistical Annual for 1994

an equilibrium in which the firms are successfully colluding tacitly.<sup>26</sup> Additional evidence of stability is the fairly constant net interest margins enjoyed by the two firms.<sup>27</sup>

Current law commits Fannie Mae and Freddie Mac to the secondary market. That is, they cannot invest their assets in other lines of business. Consequently, they face a serious barrier to exit. We suspect that this facilitates tacit collusion because driving a rival from the market is not a viable alternative. That is, since they are committed not to exit, they are more likely to find tacitly colluding to be their best strategy.

The homogeneity of mortgage-based securities (within their classes of such securities) would tend to make price competition fiercer *when it exists* but could, paradoxically, make tacit collusion easier to sustain when it exists. The more similar the products become, the more intense is the competition, because price becomes increasingly the only dimension on which to attract customers.<sup>28</sup> More relevant for Fannie Mae and Freddie Mac, however, is that greater homogeneity can make it

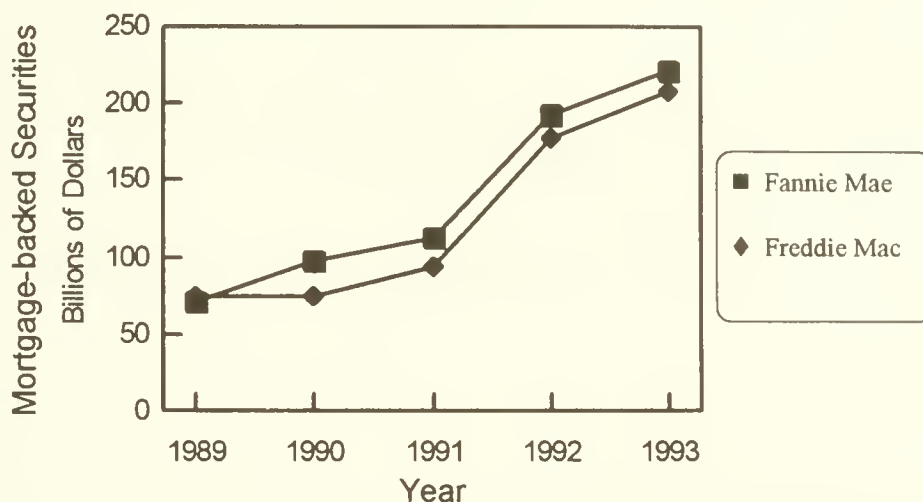
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<sup>26</sup> Admittedly, such behavior is also consistent with a Bertrand equilibrium (firms price at their common marginal cost) in which the firms earn zero economic profit. We find this conclusion implausible for many reasons, which we detail below, not least of which is that we feel that these firms are making positive economic profits.

<sup>27</sup> Sources: *Freddie Mac Investor/Analyst Report* and *Fannie Mae Investor/Analyst Report* for the fourth quarter 1993.

<sup>28</sup> A well-known result in industrial organization is that if firms are engaged in head-to-head price competition, such as Bertrand competition, then they can increase their profits by differentiating their products. See, e.g., Tirole (1988, pp. 277–282).

**FIGURE 13**  
**Amount of Securitization, 1989-1993**



Source: The Mortgage Market Statistical Annual for 1994

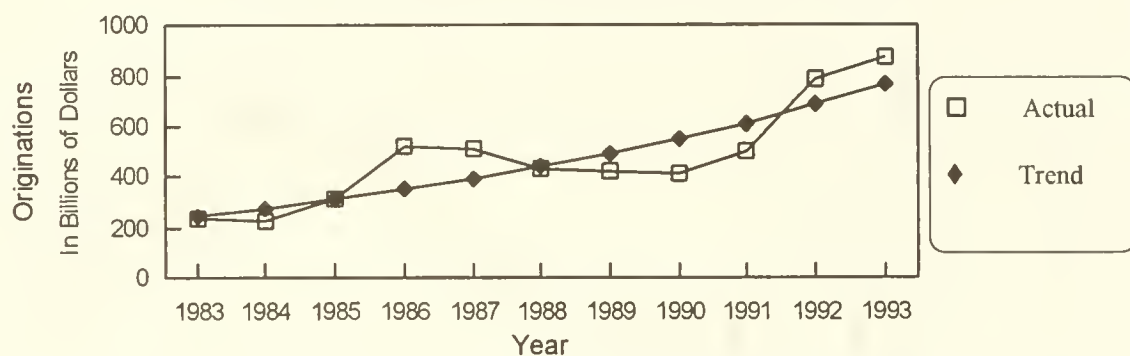
easier to support tacit collusion. From the delta condition, three factors affect the ability of firms to collude tacitly: the payoff to colluding; the payoff to deviating (undercutting); and the payoff to not colluding. Although differentiated products cannot lower the first payoff, they need not raise it by much, if at all. Differentiating products greatly raises the payoff to not colluding and lowers the payoff to deviating. These changes in the payoffs have an ambiguous theoretical effect on the ease of sustaining collusion; that is, it is possible—although not always true—that product differentiation can make tacit collusion *harder* to sustain. Consequently, in our context homogeneity may facilitate collusion.<sup>29</sup>

The rapid increase in the amount of securitization carried out by Fannie Mae and Freddie Mac over the 5-year period 1989–93 (a 217% increase for Fannie Mae and a 184% increase for Freddie Mac),<sup>30</sup> particularly their rapid response to the refinancing boom of 1992 (see Figure 13), suggests that neither Fannie Mae nor Freddie Mac are operating at capacity. Moreover, both firms seem able to increase their business rapidly in response to changing market conditions. This facilitates tacit collusion, which is sustained by the threat of price wars should any firm deviate from the collusive price (i.e., lowering  $\pi_N$  in the delta condition).

<sup>29</sup> A second way in which homogeneity can aid tacit collusion is that the more homogenous the products, the easier it is to detect whether a rival firm is undercutting the collusive price. The easier it is to detect undercutting, the swifter can be the punishment, which lessens the payoff to undercutting.

<sup>30</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

**FIGURE 14**  
**Real Trends in Mortgage Origination, 1983-1993**



Source: The Mortgage Market Statistical Annual for 1994

Stability in demand matters because the more unstable a market is, the harder it is for rivals to collude tacitly. First, if demand is quite unpredictable, then firms can have difficulty determining whether changes in their demand are due to movement in the demand curve or price undercutting by their rivals. The harder it is to detect undercutting, the harder it is to punish undercutting, thus increasing the temptation to undercut. Second, if demand is predictable but cyclical, then sustaining collusion may be difficult because the temptation to undercut during a boom is great, while the deterrence effect of later punishment during the ensuing bust phase is limited.

It is difficult to measure the stability of demand for mortgage-based securities over time for many reasons. First there is some degree of heterogeneity in the securities themselves, making it difficult to define a price. Moreover, many securities are initially created through negotiated swaps, making obtaining price data impossible for outsiders, such as ourselves. Finally, there are econometric difficulties in estimating demand curves given the short history of this market. We therefore cannot say much *directly* about the stability in demand over time.

On the other hand, Goodman and Passmore (1992) show that indirect techniques may offer insight into whether demand volatility affects Fannie Mae and Freddie Mac's ability to collude tacitly. Their findings suggest that Fannie Mae and Freddie Mac are able to collude tacitly despite demand volatility. In our view Goodman and Passmore's analysis—although perhaps the best possible given the paucity of data one faces—cannot be seen as conclusive on this point. Nevertheless, we see theoretical reasons to accept their conclusion:

- (1) To insiders, demand shocks are sufficiently transparent in this market that we doubt either firm could hide secret price cuts from its rival for long enough to gain more from the price cuts than it stands to lose by triggering a price war.
- (2) As noted earlier, sustaining collusion may be difficult in cyclical markets because the temptation to undercut during a boom is great, while the deterrence effect of later punishment during the



ensuing bust phase is limited. But this general insight is much less applicable here because this is a growing market (see Figure 7 above). Consequently the trough of the next bust will not be much lower than the peak of the preceding boom. In other words, because this is a growing market, the deterrence effect of later punishment is greater than it would otherwise be, which means the firms will have an easier time engaging in tacit collusion.

Supply (i.e., mortgage origination) is also somewhat cyclical (see Figure 14).<sup>31</sup> On the other hand, the deviation around the trend is not particularly pronounced: 75% of the variation in actual mortgage originations is explained by the trend line. The residual unpredictability of supply strikes us as too small to have much of an impact on the firms' ability to collude tacitly.

Table 1 summarizes our analysis of the conforming market.

**TABLE 1**

**Scope for Tacit Collusion in the Conforming Conduit Market**

Feature	Conclusion for Tacit Collusion
Two competitors	Strongly facilitates tacit collusion.
Roughly equal market share	The stability of market share over the past 5 years suggests successful tacit collusion.
Heterogeneity in other dimensions; homogeneity of product	Unlikely to impede tacit collusion completely.
High exit barriers (strong commitment to the market)	In this context likely to make tacit collusion a more attractive strategy.
Adequate capacity	Facilitates tacit collusion.
Cyclical in demand and supply	Nature of cycles, combined with growth in the industry, suggest that this is not an impediment here. Econometric results of Goodman and Passmore are consistent with this conclusion.

<sup>31</sup> The actual curve is the real value of mortgage originations (Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994). The trend curve was found by estimating the regression  $\ln(m_t) = \alpha + \beta t + \epsilon_t$ , where  $m_t$  is the real value of mortgage originations,  $\alpha$  and  $\beta$  are the coefficients to be estimated, and  $\epsilon_t$  is the error term.

Our conclusion, therefore, is that tacit collusion should be expected in the conforming market. The next subsection considers other empirical evidence that supports this conclusion.

### (3) *The Conforming Conduit Market: Other Evidence for Tacit Collusion*

The Goodman and Passmore paper offers one direct attempt to determine whether Fannie Mae and Freddie Mac are engaged in tacit collusion. They conclude that Fannie Mae and Freddie Mac are tacitly colluding. As we noted previously, however, their results cannot be seen as conclusive because of data difficulties. In particular, whereas they would like to use price as their dependent variable in their regression analysis, price is not observable. Instead, they proxy for price using the ratio of mortgages securitized by both Fannie Mae and Freddie Mac to the total amount of mortgages available for securitization. As they detail in their Appendix II, a model can be constructed with the following features:

- (1) If Fannie Mae and Freddie Mac are *not* tacitly colluding (i.e., are engaged in Bertrand competition), then this securitization rate will be positively correlated over time with the amount of mortgages available for securitization.
- (2) If Fannie Mae and Freddie Mac are tacitly colluding, then this securitization rate will be negatively correlated over time with the amount of mortgages available for securitization.<sup>32</sup>

It is the finding of a negative correlation (i.e., prediction (2)) that leads Goodman and Passmore to conclude that Fannie Mae and Freddie Mac are tacitly colluding. Unfortunately, the model that leads to prediction (2) is dependent on assumptions about the demand curves for mortgage-backed securities (MBSs) that cannot be independently verified. If these assumptions are different, then (2) can cease to be a prediction of the model. Moreover, other models—that have little to do with collusion—exist that also lead to prediction (2). For instance, suppose that the firms add capacity to handle the *expected* increase in mortgages available for securitization. If the actual amount of mortgages available is greater than expected, then the securitization rate drops because the firms have not added the needed capacity. If, however, the actual amount is less than expected and the firms shed capacity slowly, then the securitization rate rises because of excess capacity. This would also lead to a negative correlation between the securitization rate and the amount of mortgages available for securitization.

Since the Goodman and Passmore results are not conclusive support for our hypothesis that Fannie Mae and Freddie Mac are tacitly colluding, we need to consider other evidence. One possible avenue for collecting evidence is to consider the profits of Fannie Mae and Freddie Mac. If they are unable to collude tacitly, and were thus playing the Bertrand equilibrium, their *economic* profits

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<sup>32</sup> To be precise, this prediction holds only if the discount factor is high enough. If the discount factor is lower (but not so low that tacit collusion is impossible), then there will be tacit collusion but pricing will be countercyclical. In this the correlation would, again, be positive. Because, however, Goodman and Passmore find evidence to support a procyclical collusion model, we will not discuss this possibility further.

would be zero.<sup>33</sup> If, in contrast, they are earning positive *economic* profits, then this would strongly suggest tacit collusion. The problem with this test is that it is formulated in terms of *economic* profits, whereas we can only observe accounting profits. It is well known that accounting profits and economic profits need not agree for a number of possible reasons. Consequently, the large *accounting* profits earned by Fannie Mae and Freddie Mac, although suggestive, do not offer conclusive evidence that they were tacitly colluding. (Fannie Mae's profit in 1993 was \$1.87 billion and Freddie Mac's was \$786 million; their 1994 profits were \$2.13 billion and \$983 million, respectively.)<sup>34</sup>

One way in which accounting profits and economic profits differ is that accounting profits do not reflect the opportunity cost of capital. For example, consider a fictional firm with capital worth \$100 at the start of the year. Suppose that this firm earns an accounting profit of \$5 in that year. Has this firm earned an economic profit? The answer depends on what return the firm's owners could have received had they sold the capital and invested the \$100 in something else with the same risk as their firm. If this something else is less than \$5, then they have made a positive economic profit; otherwise they have not. That is, to make a positive economic profit, their return must exceed the return they could have received from their next best use of their capital.

Fannie Mae's and Freddie Mac's return on their capital, measured as their return on equity (ROE), is quite high: Fannie Mae's was 25.3% in 1993 and Freddie Mac's was 22.2%.<sup>35</sup> This is well in excess of the average ROE (15.5%) of investment and brokerage firms.<sup>36</sup> Historically, Fannie Mae's and Freddie Mac's ROEs have also compared favorably to the ROEs of mortgage originators and commercial banks, as well as the Standard and Poor's (S&P) 500—see Table 2. These high ROEs for Fannie Mae and Freddie Mac are certainly consistent with positive economic profits.

Unfortunately, although consistent with positive economic profits, these ROEs are not absolutely conclusive either. The reason is that there is a tradeoff between risk and return; that is, for investors to be willing to accept greater risks, they must be compensated with higher returns. Consequently, the high ROEs enjoyed by Fannie Mae and Freddie Mac could possibly just be fair return for risk. That is, were investors to invest in other investments with similar risk, they would have received the same (or possibly greater) returns. If this were the case, then Fannie Mae's and Freddie Mac's economic profits would be zero (or possibly negative). Although a plausible case could be made that the risks faced by Fannie Mae and Freddie Mac are comparable to those faced by

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<sup>33</sup> To be precise, this conclusion presumes (i) that Fannie Mae and Freddie Mac's marginal cost curves be relatively flat over the relevant range of output; and (ii) that they have the same marginal cost curves over the relevant range. Point (ii) is fairly innocuous in this context: If they were not colluding tacitly and one firm had a cost advantage, it would drive the other out of business. Since both firms are currently operating, (ii) cannot be an issue here. Although we have no data (nor can we acquire it) on point (i), the nature of securitization suggests that local returns to scale would be fairly constant. We, therefore, see both presumptions as reasonable in this context.

<sup>34</sup> Sources: *Freddie Mac 1993 Annual Report*, *Fannie Mae Investor/Analyst Report* for the fourth quarter 1993, and private communication from John Gardner.

<sup>35</sup> Sources: *Freddie Mac 1993 Annual Report* and *Fannie Mae Investor/Analyst Report* for the fourth quarter 1993.

<sup>36</sup> Source: Value Line.

TABLE 2

After-Tax Return on Equity

	1993	1992	1991	1990	1989	1988	1987
Fannie Mae	25.3%	26.5%	27.7%	33.9%	30.7%	24.9%	25.1%
Freddie Mac	22.2%	21.2%	23.6%	20.4%	25.0%	27.6%	28.2%
Mortgage Originators	n.a.	n.a.	n.a.	n.a.	0.0%	0.7%	5.3%
Commercial Banks	15.7% <sup>1</sup>	13.0%	7.9%	7.8%	7.8%	13.3%	2.0%
S&P 500 <sup>2</sup>	12.1%	10.7%	8.6%	12.0%	13.6%	14.8%	11.8%

Sources: Goodman and Passmore (1992), FDIC, *S&P Analysts' Handbook*, *Freddie Mac 1993 Annual Report*, *Fannie Mae 1992 Annual Report*, and *Fannie Mae Investor/Analyst Report* for the fourth quarter 1993.

<sup>1</sup> Through September 1993 (annualized)

<sup>2</sup> Pre-tax

the investment and brokerage industry, mortgage originators, and commercial banks—in which case Fannie Mae’s and Freddie Mac’s ROEs are evidence that they are earning positive economic profits—this again cannot be seen as absolutely conclusive.

A better approach would be to consider the relation between the market’s value for Fannie Mae and Freddie Mac and their book values. This relation tells us about economic profits for the following reason: Consider a hypothetical company with \$100 in capital at the start of the year and 100 shares of equity. Suppose this company will operate for 1 year and then be liquidated.<sup>37</sup> Suppose that the expected return on this hypothetical company is  $R_h$  and the expected return on the best alternative investment with similar risk is  $R_o$ . If one buys a share in this hypothetical company, then at the end of the year one has a claim on  $\$(1+R_h)$ . The present discounted value of this, accounting for risk, is

$$\frac{\$(1+R_h)}{1+R_o}$$

With an efficient stock market, this would also be the price at which a share of stock would trade today; that is, the market value of the equity would be

<sup>37</sup> This assumption is not critical for our conclusion. We make it only to keep this theoretical point as straightforward as possible.



$$\$100 \times \frac{1+R_h}{1+R_o} .$$

If this company is expected to earn positive economic profits, then  $R_h > R_o$  and the market value will exceed the \$100 of book value. If this company is expected to earn nonpositive economic profits, then  $R_h < R_o$  and the market value will be less than the \$100 of capital. In other words, a test of whether the firm earns positive economic profits is whether its market value exceeds the current value of its capital (equity). This test is usually formulated as the ratio of the market value of equity to the book value of equity: A ratio above one is evidence of positive economic profits, while a ratio of one or less is evidence of nonpositive economic profits.

For Fannie Mae the ratio of market value to book value was 2.54 in 1994, while this ratio was 2.63 for Freddie Mac.<sup>38</sup> In other words, these ratios suggest that Fannie Mae and Freddie Mac are making positive economic profits.

Although we believe this to be a good test in this context, we should point out that its validity depends *inter alia* on the book value of equity being an accurate measure of the true value of capital. The book value of equity is the book value of assets minus the book value of liabilities. A standard problem is that this difference may understate the true value of capital because the book value of assets can understate the true value of assets for two reasons:

- (1) The book value is typically the historic value. If the assets have appreciated or there has been inflation, then the book value will understate the true value.
- (2) There may be intangible assets (e.g., goodwill or brand equity) that are not measured by the accounting system.

In this context neither problem seems serious. Most of Fannie Mae's and Freddie Mac's assets are closely duration-matched, so swings in market interest rates do not significantly affect the market value of Fannie Mae and Freddie Mac. Moreover, current rates of inflation combined with these firms' current growth in assets make it difficult to believe that the ratios we found are due solely to the disparity between historic and current value.<sup>39</sup> As we have already noted, it seems unlikely that goodwill and brand equity are important intangible assets here.

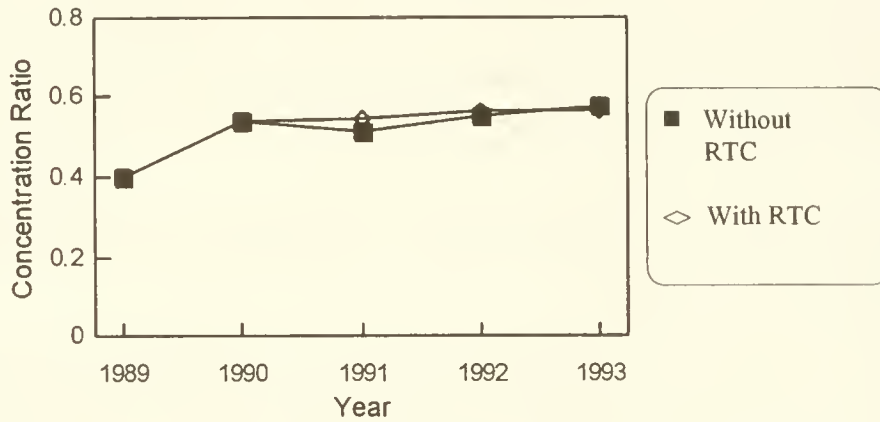
Despite our confidence in these ratios, we consider one final piece of evidence. There is a method, known as Tobin's  $q$ , that uses a similar ratio, with a similar interpretation, but which is less

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<sup>38</sup> Source: Value Line.

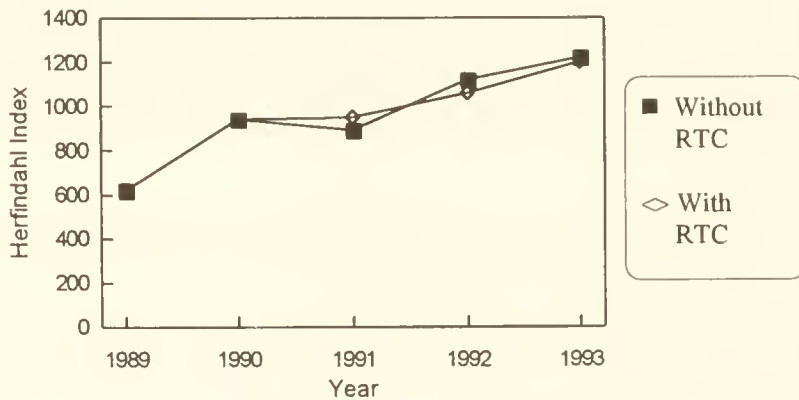
<sup>39</sup> Consider Freddie Mac. If we assume that (i) inflation has been 3% recently; (ii) all liabilities are current (a counterfactual assumption); (iii) no assets are marked to market (another counterfactual assumption); and (iv) Freddie Mac had a 41% growth in assets between 1992 and 1993 (source: *Freddie Mac 1993 Annual Report*), then *all* of Freddie Mac's remaining assets would have to be nearly 4 years old for mis-measurement of assets to account fully for Freddie's ratio of market value of equity to book value of equity. Four-year-old assets, however, are inconsistent with Freddie Mac's recent asset growth over the past 4 years.

**FIGURE 15**  
**Four-Firm Concentration Ratios, Jumbo Market, 1989-1993**



Source: The Mortgage Market Statistical Annual, 1994

**FIGURE 16**  
**Herfindahl Indices, Jumbo Market, 1989-1993**



Source: The Mortgage Market Statistical Annual, 1994

susceptible to measurement problems.<sup>40</sup> Although constructing Tobin's  $q$ 's for Fannie Mae and Freddie Mac is outside the scope of this report, we can use Goodman and Passmore's (1992) reported values: Fannie Mae had a Tobin's  $q$  of 1.6 in 1990 and a Tobin's  $q$  of 1.8 in 1989, while Freddie Mac's were 1.0 and 0.6 respectively. The Tobin's  $q$ 's for Fannie Mae are strong evidence that Fannie Mae was earning positive economic profits. Freddie Mac's are more troubling, since they suggest no or negative economic profits. Goodman and Passmore attribute Freddie Mac's low  $q$ 's to the temporary downward pressure that affected Freddie's stock in this period; that is, they argue that these low  $q$ 's do not accurately reflect Freddie Mac's true profitability.

In summary, although no one piece of empirical evidence may be considered conclusive for our conjecture that Fannie Mae and Freddie Mac are tacitly colluding, the pieces of evidence (Goodman and Passmore's results, positive *accounting* profits, high ROEs relative to comparable firms, ratios of market value of equity to book value of equity in excess of one, and—for Fannie Mae only—Tobin's  $q$ 's in excess of one) taken together support our conjecture. This, combined with the strong theoretical case for tacit collusion, makes us confident that Fannie Mae and Freddie Mac have been engaging in tacit collusion in the conforming market.

#### **(4) The Jumbo Market**

In 1993, 33 firms and the Resolution Trust Corporation (RTC) issued private-label MBSs. Most models of oligopoly behavior would argue that 33 or 34 firms should have serious difficulties in tacitly colluding; hence, a more competitive market should be expected.

These 33 or 34 firms hold different market shares. The Herfindahl index for 1993 is 1200.24 with RTC included and 1227.76 without RTC. To see the heterogeneity in market shares, compare these Herfindahl indices to the theoretical minimums (i.e., equal shares) for industries with this many competitors, 303.03 and 294.12, respectively. This heterogeneity is also reflected in the 57% four-firm concentration ratio for 1993. Although such heterogeneity can arguably lessen competition, it must be remembered that both Herfindahl indices are well below 1800, the level at which stringent antitrust scrutiny typically begins.

Both the four-firm concentration ratios and the Herfindahl indices have been growing over time (see Figures 15 and 16 respectively).<sup>41</sup> At face value this would suggest that the jumbo market has been becoming less competitive (or, alternatively, competitive pressures have been reduced). We caution, however, against this conclusion because the annual turnover rate among the largest firms has been rather great:

- (1) Only two of the top four firms in 1989 were among the top four in 1993.
- (2) In this 5-year period, four different firms have been the largest firm.

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<sup>40</sup> Tobin's  $q$  is the ratio of the market value of assets to their estimated replacement cost. See, e.g., Brealey and Myers (1988, p. 660) for further details.

<sup>41</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

(3) In this 5-year period, eight different firms have been in the top four.

These turnover statistics suggest an unsettled market in which firms are still competing for market share. This is not consistent with an industry engaged in stable tacit collusion. This conclusion is strengthened when one considers that there has recently been entry of large players (e.g., RTC, which entered at number one in 1991, and Countrywide/CWMBS, which entered at number five in 1993). It is difficult to sustain tacit collusion in the face of entry at this scale.

Commitment to the market seems weak for the private-label firms. First, one of the big competitors, RTC, must exit the industry by 1996.<sup>42</sup> Second, of the 35 firms in the industry in 1989, 20 (57%) were no longer in the industry in 1993.<sup>43</sup> The fact that a large competitor must exit hinders tacit collusion in two ways: One, the firm that must exit no longer cares much about *future* punishment and hence is more likely to undercut price; two, the surviving firms know that the exiting firm will not be around to punish them if they undercut, which may make them more likely to undercut price. Moreover, because firms exit so readily, firms are tempted to drive out weak firms rather than collude tacitly with them.<sup>44</sup> On the other hand, the fact that firms will so easily be driven to exit means that they will not compete as if their backs are to the wall. We conclude, therefore, that the evidence concerning exit points against tacit collusion, although this evidence may simultaneously suggest that the resulting price competition is less intense than it might otherwise be.

The output of these firms is homogenous. Were these firms tacitly colluding, this could facilitate tacit collusion. On the other hand, as noted above, product homogeneity will intensify price competition when firms are *not* tacitly colluding. If, as seems likely here, the private-label firms are not tacitly colluding, then the homogeneity of their product should lead to fairly intense price competition.

The capacity of firms in the jumbo market seems quite elastic. Fourteen percent of all MBSs issued by private labels in 1993 were issued by new entrants. Moreover, for the 21 of the 34 firms that operated in both 1992 and 1993, the median increase was 12.2%. As noted earlier, capacity has ambiguous effects for tacit collusion, but if there is competition, capacity makes it more intense.

Although we have no evidence (direct or indirect) on how demand for securities based on jumbo mortgages has fluctuated over time, we would be surprised if its fluctuations were not similar to those of the demand for securities based on conforming mortgages—given the significant substitutability of these assets. As we discussed for conforming mortgages, these fluctuations are not likely

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<sup>42</sup> The RTC's share of the market was 19.4% in 1991, 16.9% in 1992, and 1.2% in 1993. Source: Ibid.

<sup>43</sup> Source: Ibid. For this tally, we were using the names listed in *ibid*. To the extent firms have merely changed names (in a manner that is *not* obvious), then this 57% attrition rate would be overstated. We doubt that this, however, is significant. Moreover, clearly some of the companies, such Drexel Burnham Lambert, Smith Barney, and Glendale Federal have certainly exited.

<sup>44</sup> Muolo (1993) reports that some of the more established firms expected the newer and weaker firms to exit shortly. The more established firms would, therefore, have little incentive to attempt to collude tacitly with these firms.



to impede tacit collusion. On the other hand, the inhibiting effect of fluctuations on tacit collusion will be greater the more firms there are, so the inhibiting effect of demand fluctuations will be greater in the jumbo market than in the conforming market. Similarly, the supply fluctuations will be similar between the two markets. Again, the inhibiting effect of these supply fluctuations will be greater for the jumbo market than for the conforming market.

In summary, the large number of firms in the jumbo market is strong evidence against tacit collusion and for competition. This conclusion is further bolstered by the low Herfindahl index for this market, its lack of leaders (i.e., consistently dominant firms), fluctuations in market shares, and the high attrition rate among its firms, including large ones. Moreover, this competition could be quite intense: firms in this industry produce a homogeneous product and do not appear to be capacity constrained. We therefore feel confident in concluding that the jumbo market is better described by Bertrand competition (or similar models of intense competition, including perfect competition)<sup>45</sup> than by any other industrial organization model. In particular, we are confident that tacit collusion is *not* the correct model.

### 2.3. Entry

#### (1) *The Basic Issues*

As illustrated by our discussion in Section 2.2, most models in industrial organization predict that competition becomes more intense as the number of firms in the industry grows. Since the firms already in an industry (incumbent firms) wish to minimize the level of competition, their strategies will be governed in part by a desire to prevent or deter entry. How much their strategies are affected by the threat of entry depends on how serious the threat is. If, for example, the threat is remote, then their strategies will be affected little. If, however, the threat is serious, then we can expect considerable adjustments in their strategies. For instance, to deter entry, incumbent firms may seek to “lock up” buyers and suppliers through long-term contracts or engage in limit pricing (setting prices at levels that signal to potential entrants that entry would be unprofitable or that are sufficiently low to make entry unprofitable).<sup>46</sup>

For both the conforming and jumbo markets, we will consider the seriousness of the entry threat and the way in which this threat could be affecting the strategies of the incumbent firms.

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<sup>45</sup> In terms of *observable* effects, there are almost no differences between Bertrand competition and perfect competition. The differences between these two models mainly have to do with how strategic the competitors are assumed to be in theory. In Bertrand competition the competitors are (myopically) strategic, while in perfect competition the competitors are not strategic at all (they are price takers). Given how sophisticated the firms in the jumbo market are, we are hesitant to model them as non-strategic; hence, our emphasis on Bertrand competition.

<sup>46</sup> See Section 9.4 of Tirole (1988) for a textbook treatment of a standard limit-pricing model.

In assessing the seriousness of the entry threat, we need to consider “natural” barriers to entry as well as the strategic barriers that the incumbent firms may erect. In the context of conduits, natural barriers refer (possibly) to the following:

- (1) Advantages granted certain conduits by law (e.g., exemptions from state and local taxation for Fannie Mae and Freddie Mac.)
- (2) Legal prohibitions on entry (e.g., the prohibition against Fannie Mae and Freddie Mac securitizing jumbo mortgages).
- (3) Advantages granted certain conduits by implicit financial guarantees (e.g., the implicit guarantee enjoyed by Fannie Mae and Freddie Mac because of their GSE status).
- (4) High minimum efficient scales of production.
- (5) Advantages resulting from experience (e.g., from learning by doing or built-up goodwill).

Point (1) and point (5), in part, refer to cost advantages that certain incumbent conduits might have. In particular, if their costs are lower at every level of output, then it is possible for them to price at a level at which they are profitable, but no entrant would be profitable. Indeed, the *possibility* that the incumbent conduits could set their prices to such levels might be sufficient to deter entry—at least if entry requires a sizable upfront unrecoverable investment.

Point (3) and point (5), in part, refer to the advantages of offering (or being perceived as offering) a superior product, that is, a product for which customers are willing to pay more. Since customers are willing to pay more, the incumbents can set their price such that the lower price that entrants would have to charge to take market share would be less than the entrants’ costs.<sup>47</sup> Indeed, the *possibility* that the incumbent conduits could set their prices to such levels might be sufficient to deter entry—at least if entry requires a sizable upfront unrecoverable investment.

In discussing points (1), (3), and (5), we have noted that the *threat* of low prices by the incumbents could be sufficient to deter entry *if entry requires a sizable upfront unrecoverable investment*. That is, the issue here is whether “hit-and-run” entry is possible: Can potential entrants enter quickly enough to enjoy the incumbents’ high prices, get out quickly enough to avoid the ensuing price response by the incumbents, and do all this without sinking significant capital?<sup>48</sup> If hit-and-run entry is possible, then the incumbents’ threat to lower prices in response to entry loses its deterrent effect. To deter entry, the incumbents’ *steady-state* prices will have to be low enough to deter entry. In other words, the threat of hit-and-run entry could result in considerable downward pressure on the incumbents’ prices. We investigate the possibility of hit-and-run entry in greater detail below.

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<sup>47</sup> Formally, if the incumbents’ product enjoys a price premium of  $P$ , then if the incumbents charge a price of  $p_1$ , the entrants would need to charge a price of  $p_1 - P$ . If  $p_1 > AC > p_1 - P$ , where  $AC$  is average cost, then the incumbents are profitable at their price, but the entrants are unprofitable at their price.

<sup>48</sup> The theory of hit-and-run entry, also called the contestable-market hypothesis, is reviewed and critiqued in Gilbert (1989).

Point (4) refers to the idea that many production processes exhibit increasing returns to scale over some initial range of output (i.e., average costs are falling over some range as the firm expands from zero units). The point where average costs either level off or begin to rise is referred to as the minimum efficient scale (MES).<sup>49</sup> Since a firm is earning a profit only if its price exceeds its average cost, a firm may have to operate fairly close to its MES to be profitable. In many industries (e.g., automobiles), the MES is quite large (e.g., it equals a 10% share of the *total* U.S. automobile market).<sup>50</sup> If prices are fairly low, then entering at (or near) the MES could depress price so far as to make entry unprofitable. Even if a new entrant operating at the MES would not depress price that far, it may take an entrant a long time to reach the MES, particularly if there is learning by doing or customer goodwill towards the incumbents to overcome. While the entrant is growing toward the MES, it could be suffering losses. If near-term losses, appropriately discounted, outweigh long-term gains, appropriately discounted, then the entrant would choose not to enter. We investigate the issue of MES in greater detail below.

A sixth “quasi-barrier” is capital. We use the term quasi-barrier because capital is not a barrier to entry in classical economic terms: If positive economic profits (i.e., those that more than cover costs including the opportunity cost of capital) can be earned, then investors will wish to invest in an entrant. More recent game-theoretic work, however, has shown that if the information to the capital markets about the profitability of the market is less than perfect, then the incumbent firms can take strategic actions that raise doubts about profitability in the view of the capital markets, thereby raising the cost of capital to entrants past the point that entry is profitable.<sup>51</sup> For this reason it is perhaps worth considering the access of potential entrants to the capital markets.

## ***(2) Evidence on Entry From the Jumbo Market***

As we noted in Section 2.2.4 above, there has been entry into the jumbo market in the past 5 years. The jumbo market is, therefore, the natural place to go to examine the effectiveness of certain barriers in deterring entry. Admittedly, there is possibly some danger in generalizing our conclusions about the jumbo market to the conventional market as a whole, but we feel that many of the insights we gain here will carry over.

We observed above that turnover in the jumbo market has been quite high; that is, there has been considerable entry into this market. Figure 17 summarizes these rates of entry.<sup>52</sup> From Figure 17, although entrants tend to be smaller in terms of mortgages securitized, they are nevertheless a

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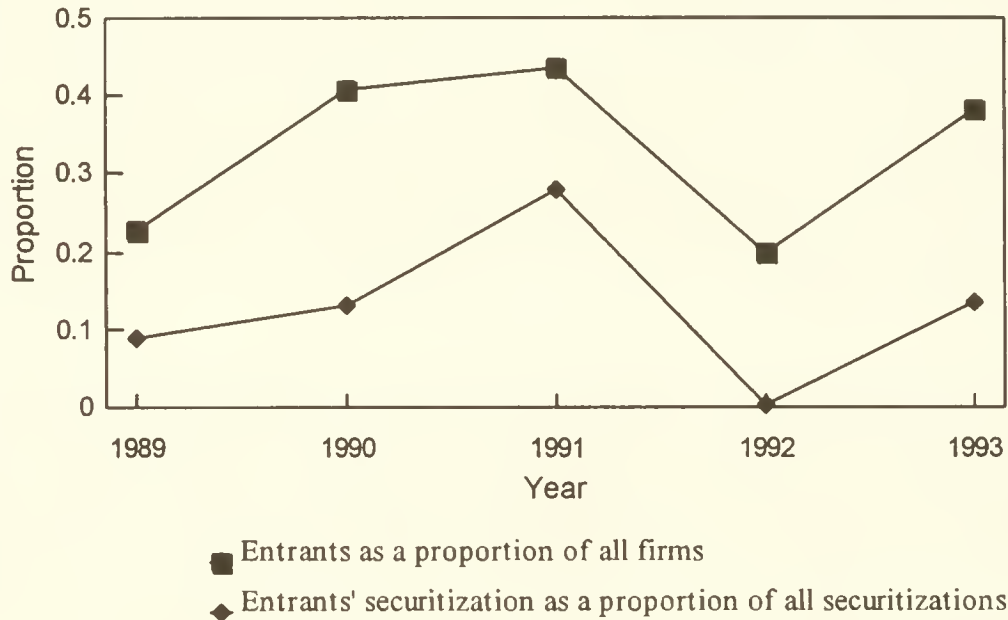
<sup>49</sup> For example, if  $x$  is output and the firm's cost function is  $\$[x^2 + 1,000,000]$ , where \$1,000,000 is its annual fixed cost (e.g., the opportunity cost of its machinery), then its average cost is  $\$[x + 1,000,000/x]$ . Average cost is falling for  $x < 1000$  units and rising for  $x > 1000$  units. The MES is, therefore, 1000 units.

<sup>50</sup> Source: Oster (1994, p. 61).

<sup>51</sup> See, e.g., Bolton and Scharfstein (1990).

<sup>52</sup> We define a firm as entrant in a given year if it securitized no mortgages in the previous year. Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

**FIGURE 17**  
**Entry in the Jumbo Market, 1989-1993**



Source: The Mortgage Market Statistical Annual, 1994

significant source of securitization: In 3 of the 5 years, they accounted for more than 10% of the jumbo mortgages securitized.

The significant entry that the jumbo market has experienced in the past 5 years suggests that neither strategic nor natural barriers to entry are particularly effective. Given our conclusions from Section 2.2.4 about competitiveness in the jumbo market, the lack of effective strategic barriers comes as no surprise (indeed, it further supports our earlier conclusions): Strategic barriers from an oligopoly require (i) a motive for erecting barriers (e.g., protecting tacit collusive pricing); and (ii) an ability to collude tacitly on erecting these barriers. As we concluded previously, neither requirement is likely to be met in the jumbo market.

We next consider the effectiveness (or lack thereof) of natural barriers. We know of no legal or implicit advantages that have been granted private-label firms (i.e., barriers (1) and (3), above). The no-jumbo-mortgages restriction on Fannie Mae and Freddie Mac is effective in keeping them out (i.e., barrier (2) from above), but will have no impact on other potential entrants (except, possibly, to encourage their entry). This leaves as possible natural barriers high MES and advantages from experience.



From Figure 17 entrants operate at a smaller scale, on average, than do incumbent conduits. Combine this with the fact that price should be close to the MES in a competitive market, and we can conclude that either the MES must be fairly low or rapid growth is possible. The reasoning behind this conclusion is that if the MES were high, then these entrants would not find entry profitable, at least not immediately. Therefore, either the MES is low, so entry is profitable immediately, or the entrants believe they can grow quickly enough to reach a scale at which they will be profitable.

To distinguish between these two explanations, we consider the growth rate of entrants. In the 5-year period 1989–93, there were 56 entrants.<sup>53</sup> Of these, 26 (46%) did no securitization in the year following their entry; that is, their entry appears to be hit and run (an additional five only lasted 2 years). For the 30 firms for which we can calculate growth rates, their median growth rate from their first year to their second year was 79.8%.<sup>54</sup> This is impressive, although it must be recognized that average annual growth rate for the jumbo market as a whole was 66.2% (85.0% if 1993 is not included). These findings are, unfortunately, not entirely conclusive with respect to choosing between the two explanations. On the one hand, if the 46% of firms that were in the market for just 1 year were hit-and-run entrants, then this would argue for a low MES. Unfortunately, the data available to us do not allow us to distinguish hit-and-run entrants from hit-and-run-over entrants (i.e., entrants who left because they were losing money). Given the great sophistication of many of these entrants, such as investment firms and large mortgage originators, we doubt that the infant mortality rate would be as high as 46%; yet at the same time, we are aware that the infant mortality rate for many new ventures is typically fairly great and a rate of 46% is not unreasonable in comparison.<sup>55</sup> The rapid growth rates of the longer term entrants means that a strategy of suffering short-run losses while building toward the MES cannot be dismissed as an explanation. One problem, however, with this explanation is that it could merely be picking up the growth in the market itself. A second problem is the number of entrants that came in with a large market share (e.g., RTC, which entered in 1991 with 19.4% of the total market, and Countrywide/CWMBS, which entered in 1993 with 6.3% of the total market);<sup>56</sup> that is, because there seems to be an option of large-scale entry, it is unclear why conduits would pursue the small-scale-entry-and-grow strategy.

Even without distinguishing between the two explanations, it is clear that MES is not much of a barrier: Either it is low or conduits can grow sufficiently quickly to reach the MES.

We turn now to advantages from experience (barrier (5)). We have argued previously that consumer goodwill and brand loyalty are unlikely to be important considerations in this market: The buyers are sophisticated, the products are exceedingly homogenous, and the rating agencies eliminate

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<sup>53</sup> Source: Ibid.

<sup>54</sup> Source: Ibid.

<sup>55</sup> Professors Glenn Carroll and John Freeman (private communications), experts on organizational ecology, inform us that a rate of 46% is not unreasonable and is comparable to the infant mortality rate for newspapers, breweries, and, for the early 20th century, automobiles.

<sup>56</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

the need to establish consumer goodwill. Consequently, we doubt that experience vis-à-vis consumers could be an important entry barrier in the conduit market. With respect to learning by doing and other production-related experience barriers, we face essentially the same issues that we faced when we considered MES: Either these barriers are not important, making hit-and-run entry feasible, or they are moderately important, but firms learn quickly enough that they do not serve to bar entry. Given the relative sophistication of the entrants—in particular the experience of many offering other securities—we wonder if little weight should be put on production-related experience barriers. On the other hand, Muolo (1993) reports that managers of some established conduits in the jumbo market felt that the inexperience of new entrants in 1992 would cause them to suffer losses. We lack the data necessary to verify their prediction, but we feel that some weight should be given to the opinions of industry insiders.

Again, as with the MES question, no matter how we view production-related experience barriers, they clearly are not much of a deterrent in this industry.

To summarize:

- (1) Strategic and natural entry barriers are weak in the jumbo market.
- (2) There are reasons to believe that the MES is relatively low in this industry, although the available evidence is inconclusive and can be interpreted in a way that does not support low MES.
- (3) There are strong reasons to believe that customer-related experience barriers are not present in this industry.
- (4) There are reasons to believe that production-related experience barriers are low in this industry, although the available evidence is inconclusive and can be interpreted in a way that does not support low production-related barriers.

### *(3) Do the Lessons From Entry in the Jumbo Market Extend to the Conventional Market?*

With respect to those natural barriers that are common to the conventional market as a whole, the obvious question is whether they would be equally weak in this broader market, particularly after privatization. We suspect that the answer is yes. Yet it must be remembered that Fannie Mae and Freddie Mac both have more experience than the private-label conduits and also operate at a scale that is an order of magnitude greater than the private-label conduits.

Fannie Mae's and Freddie Mac's greater experience means that they are further along any learning curve. If there are increasing returns to experience, then this additional experience could be significant.<sup>57</sup> In other words, while entrants might be able to catch up (or not stay too far behind) to "new" incumbents relatively quickly, the gap they must make up to catch "old" incumbents could be

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<sup>57</sup> For instance, suppose that marginal cost as a function of time,  $c(t)$ , was given by the function  $c(t) = \sin(t\pi/10) + 7 - .35t$ . It is readily shown that reduction in cost due to greater experience is rather small when  $t$  is small (i.e., for a newer industry), but much greater for larger  $t$  (i.e., an established industry).

sufficiently great as to deter entry. We, however, see little reason to believe this. Given the nature of mortgage securitization, we expect that whatever learning takes place is more valuable early on rather than later. After all, this is not an industry with production trade secrets. Consequently, we do not expect that the GSEs' greater experience gives them a substantial cost advantage.

If Fannie Mae and Freddie Mac employ the same production technology as the private-label conduits, then MES will not be a significant entry barrier as shown above. If, however, they employ a different technology, one with a far greater MES, then MES could be a significant entry barrier in a broader market.<sup>58</sup> Since Fannie Mae and Freddie Mac are operating at a much greater scale than the private labels, this possibility cannot be completely ruled out. Indeed, some of the natural barriers that we discuss below in Section 3.3.5 can be seen as indicating a far greater MES for the GSEs. Moreover, the importance of Fannie Mae and Freddie Mac in the conforming market allows them to discipline poorly performing mortgage servicers in a way that the private labels cannot, which could lead to lower costs for Fannie Mae and Freddie Mac. On the other hand, many of the private labels are vertically integrated into mortgage servicing, so the ultimate importance of this advantage could be small. Unfortunately, there is no way for us to resolve these issues conclusively with the data that are available to us.

In summary, our analysis of entry into the jumbo market suggests that there are no significant natural entry barriers. With the possible exception of MES, we feel that this conclusion can be extended to the broader conventional market. We cannot, however, be sure that MES would not be an important barrier in the conventional market because the scale of operation of Fannie Mae and Freddie Mac raises the possibility that they are employing a different technology, one with a much higher and more significant MES.

#### *(4) Strategic Barriers in the Conforming Market*

Whereas it seems theoretically implausible that the private-label incumbents would erect strategic barriers to entry, the same cannot be said of Fannie Mae and Freddie Mac. The natural barriers to entry into the conforming market are, however, sufficient to allow Fannie Mae and Freddie Mac not to incur the costs of erecting these strategic barriers. Moreover, their current practices reveal no evidence that they have erected strategic barriers. Should the natural barriers be eroded or eliminated, then Fannie Mae and Freddie Mac may attempt to erect strategic barriers.

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<sup>58</sup> To see this suppose, for example, the two technologies were such that the average cost under the first technology was a constant, but that the average cost under the second technology was U-shaped. Suppose, too, that the leftmost edge of the U was greater than the constant average cost under the first technology, but the bottom of the U was less than the constant average cost under the first technology. As long as firms produced little, they would use the first technology, but they would switch to the second technology once they were beyond a certain level. If that switching point is greater than the level of output of the private labels, but less than the output of Fannie Mae and Freddie Mac, then the private labels would be using a different technology than Fannie Mae and Freddie Mac. Moreover, if the bottom of the U is significantly less than the constant average cost under the first technology, then Fannie Mae and Freddie Mac could deter entry and possibly drive out the private labels if there were open competition in the conventional market.



Whether they will and, if so, what kind of barriers they will erect is a topic we take up in Section 5.1 below.

### *(5) Natural Barriers in the Conforming Market*

Fannie Mae and Freddie Mac enjoy a number of natural barriers:

- (1) Implicit federal guarantee against default.
- (2) Exemption from state and local taxation.
- (3) Exemption from Securities and Exchange Commission filing requirements.
- (4) No need to purchase pool insurance.<sup>59</sup>
- (5) No need to have securities rated.<sup>60</sup>
- (6) Liquidity premium (network externality) from their large size.
- (7) Exemption for institutional investors from concentration rules on the percentage of Fannie Mae and Freddie Mac securities in their portfolios. Moreover, for regulated financial institutions, a lower capital requirement is assigned to the GSEs' passthroughs than is assigned to private-label passthroughs.<sup>61</sup>

Items (1), (6), and (7) can be seen as making securities of Fannie Mae and Freddie Mac more desirable to buyers (or, in the case of (7), large classes of buyers). Items (2)–(5) can be seen as lowering the GSEs' costs.

Since entry is effectively barred in the conforming market, these seven barriers must, as a whole, be effective. It is difficult, however, to assess how important these barriers are *individually*. We do our best below.

Item (1) is undoubtedly important. Goodman and Passmore (1992) report that private-label securities are trading at yields 45 to 60 basis points above Fannie Mae's and Freddie Mac's securities. This difference must be due, in large part, to the market's treatment of the GSEs' securities as if they were rated better than AAA (AAA+), whereas many private-label securities are rated below AAA.<sup>62</sup> Although this difference could, in part, result if the market thought Fannie Mae and Freddie Mac were less likely to default than the private labels, this cannot explain a AAA+ rating. Such a rating can only arise if Fannie Mae and Freddie Mac are seen as being fully backed by the federal government.

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<sup>59</sup> See Seiders (1984).

<sup>60</sup> Ibid.

<sup>61</sup> Private communication from Bill Shear. Also see Goodman and Passmore (1992).

<sup>62</sup> Source: Ibid.



There is no way for us to estimate the importance of items (2)–(5) directly. Item (4) is critical, however: The presumably prohibitive cost of acquiring sufficient credit enhancements must, in part, explain why the private labels do not attempt to compete with Fannie Mae and Freddie Mac in the offering of “super” high-grade securities. At some level the other three are likely minor: Many industries support firms that face different taxation and different securities regulations (due to different countries of origin). On the other hand, if the market is sufficiently competitive, then even small advantages could be enough to deter entry.

Item (6), the liquidity premium, represents the idea that because the market for the GSEs’ MBSs is so large, it will be more liquid than the market for private-label MBSs. Greater liquidity means that it is easier to sell securities, both because their greater availability means that more market players have evaluated the securities, and because any given trade is a smaller proportion of the entire market and hence will have a smaller impact on the price (i.e., the discounting necessary to move a large block of securities is reduced or eliminated, the more liquid the securities). Presumably, investors are willing to pay a premium for this greater liquidity. In fact, Fannie Mae promotes itself as providing liquidity.<sup>63</sup> We doubt, however, that this premium is particularly significant, especially given the greatly increased volume of private-label securities and the homogeneous nature of these securities across conduits.

Item (7) appears important in competition for selling or swapping securities with depository institutions. Goodman and Passmore (1992) estimate that a consequence of risk-based capital requirements is that the funding cost of GSE securities is 36 basis points less than the funding cost of private-label securities. Item (7) is an amplification of item (1): Presumably, regulators would not effectively impose this 36-point difference if Fannie Mae and Freddie Mac did not enjoy the implicit federal guarantees.

### *(6) Summary on Entry*

Strategic barriers do not currently appear to play a role in either conduit market. There are no effective natural barriers in the jumbo market. Moreover, this conclusion likely carries over to the broader conventional market. The one caveat is that we cannot be sure that Fannie Mae and Freddie Mac do not enjoy an advantage due to a high MES. The natural barriers in the conforming market that arise from Fannie Mae’s and Freddie Mac’s agency status are effective in deterring entry. That is, we believe that entry would be likely (although not certain) into the conforming market if Fannie Mae and Freddie Mac lost their agency status and were left to play on a level field with the private-label conduits.

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<sup>63</sup> Source: Bill Shear (private communication).

## 2.4. Suppliers<sup>64</sup>

### (1) *The Basic Issues*

The term “suppliers” refers to those firms that supply the inputs for securitization. Suppliers, therefore, include mortgage originators, mortgage servicers, and providers of credit enhancement. These firms operate in distinct, but related, submarkets.

Given a market structure (i.e., ignoring possible changes to the structure such as vertical integration),<sup>65</sup> our main interest in suppliers has to do with their market power vis-à-vis the conduits. Market power translates into extracting more of the gains from trade (i.e., the surplus). Understanding market power is thus critical for identifying the winners and losers. Moreover, because surplus extraction can lead to inefficient allocations of resources, understanding market power is also critical for determining what welfare losses are being suffered. Specifically, we need to understand the distribution of market power between conduits and suppliers to answer questions such as the following:

- (1) To what extent, if any, do the profits of the conduits stem from their market power vis-à-vis the suppliers?
- (2) Would increased competition within the conduit market (e.g., as might follow the privatization of Fannie Mae and Freddie Mac) increase the market power of suppliers?
- (3) What trends, if any, in a supplier market might affect the relative market power of the two sides?

What is the distribution of market power between suppliers and conduits? How, if at all, has this distribution been changing over time? There are two possible sources of potential market power for suppliers: (i) the industry structure and degree of competition within the supply market; and (ii) the industry structure and degree of competition among the conduits.

### (2) *The Supply of Mortgages*

The most important suppliers to the conduits are the mortgage originators. Judging by four-firm concentration ratios and Herfindahl indices, the supply market is a fairly competitive industry:<sup>66,67</sup>

- The four-firm concentration ratio for conforming mortgages in 1993 was 9.7%.

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<sup>64</sup> See Weicher (1994) for further discussion of how the supply markets operate now and how they may operate in the future.

<sup>65</sup> We consider vertical integration below in Part 4.

<sup>66</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

<sup>67</sup> One might argue that, because much of mortgage lending is local, looking at national statistics is not the correct way of analyzing competitiveness. It must be remembered, however, that our interest is in originators as sellers of mortgages, not as lenders. Local market power could be important for lending, but, because it is a national market for the sale of mortgages, local market power is irrelevant to our analysis; that is, we really do want to consider national statistics.

- The four-firm concentration ratio for jumbo mortgages in 1993 was 24.4%.
- The four-firm concentration ratio for conventional mortgages in 1993 was 11.5%.
- The four-firm concentration ratio for all mortgages in 1993 was 14.2%.
- The 25-firm concentration ratio for all mortgages in 1993 was 35.5%.
- For conforming mortgages in 1993, the Herfindahl index is approximately 113.2.<sup>68</sup>
- For jumbo mortgages in 1993, the Herfindahl index is approximately 277.7.
- For the entire mortgage market, the Herfindahl index is approximately 122.2.<sup>69</sup>

By the standards of the industrial organization literature, these measures indicate a very competitive supply market, regardless of the conduits' market structure. *In a competitive market, there is no markup over marginal cost.* We would therefore expect originators to sell their mortgages at a price equal to the expected value of the mortgages (risk-adjusted) were they to remain in the originators' portfolios (or to be sold in the nonconduit secondary market).

In this light answering the three questions we posed above is straightforward:

- (1) The conduits are gaining as much profit as possible in their dealings with the originators given their own market conditions.<sup>70</sup>
- (2) Because the supply of mortgages is so competitive, small changes in the competitiveness of the conduit markets would have little impact on the profits or market power of the originators.
- (3) The supply of mortgages would have to become much less competitive for market power to tip toward the originators.

One question that remains is whether the supply of mortgages is becoming or will become less competitive in the future. The 25-firm concentration ratio for all mortgage originations has been increasing over the past 5 years (from 26.1% in 1989 to 35.5% in 1993). This increase has been fairly steady, although the concentration ratio did drop in 1991 (falling from 28.4% in 1990 to 26.8% in 1991). This would suggest that the market has been getting less competitive. Given, however,

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<sup>68</sup> *The Mortgage Market Statistical Annual for 1994* (Inside Mortgage Finance Publications, Inc. Washington: 1994) gives market share for only the largest 10 firms in the conforming and jumbo markets, whereas a true Herfindahl index requires the market shares of all the firms. To get around this, we have approximated the Herfindahl indices for these markets by assuming that the remaining mortgages are supplied by firms with the same market share as the 10th largest firm in the market. The bias in this procedure could go in either direction. We do not, however, expect it to be large.

<sup>69</sup> *Ibid.* gives market share for only the largest 25 firms in the overall mortgage market, whereas a true Herfindahl index requires the market shares of all the firms. To get around this, we have approximated the Herfindahl indices for this market by assuming that the remaining mortgages are supplied by firms with the same market share as the 25th largest firm in the market.

<sup>70</sup> The apparent fact that conforming mortgage rates are 20 to 50 basis points below jumbo rates does *not* contradict this conclusion: There are reasons to believe that the equilibrium output in the conforming conduit market exceeds the competitive equilibrium level—see Section 5.2.4—which would push down mortgage rates in the conforming market.

where it is today, this trend would have to continue for quite some time before our conclusions would need to be changed. To know whether this is a long-term trend would require a careful analysis of the origination market—something that is beyond the scope of this report. We can, however, look at the works of others to gain some knowledge concerning this issue.

Toevs and Zizka (1994) and Weicher (1994) argue that among the trends in mortgage banking are (i) greater concentration and (ii) declining profitability due to entry. Their first trend suggests that concentration ratios should continue to rise, which would lessen competition. On the other hand, if there is entry, this will fuel competition. We see few serious barriers to entry into mortgage origination.<sup>71</sup> Moreover, the findings of Berger and Hannan (1994) suggest that there may be a limit to how concentrated mortgage lending can become: They find that there is a reduction in cost efficiency in concentrated financial markets, which could invite entry, thereby limiting how concentrated the origination market can become locally. Because the origination market is necessarily more concentrated locally than nationally, this therefore suggests that the national origination market (i.e., the market for mortgage sellers) cannot become too concentrated either.

Finally, it should be noted that we could treat mortgage originators as “competitors” to Fannie Mae and Freddie Mac, since many mortgage originators hold mortgages in portfolio and issue “debt” (e.g., demand deposits and certificates of deposit) against them. We have chosen, however, to account for this competition differently: We build it into the supply curve of mortgages from originators (recall we expect originators to sell their mortgages at a price equal to the expected value of the mortgages were they to remain in the originators’ portfolios).

In summary, the supply of mortgages appears to be highly competitive. Although current trends seem to point toward greater concentration, the market is so competitive now that it should remain competitive for a long time. Moreover, there are reasons to believe that the trend toward greater concentration cannot continue indefinitely, which may mean that the supply of mortgages will remain permanently competitive.

### ***(3) The Supply of Mortgage Servicing***

The supply of mortgage servicing seems very competitive:<sup>72</sup>

- The four-firm concentration ratio in 1993 was 9.5%.
- The 25-firm concentration ratio in 1993 was 31%.
- The approximate Herfindahl index in 1993 was 80.2.

By the standards of the industrial organization literature, these measures indicate a very competitive market. We would, therefore, expect that servicing is being sold to the conduits at or near the servicers’ marginal cost. Consequently, any surplus is captured by the conduits.

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<sup>71</sup> However, increased automation may raise the MES for origination, which could ultimately limit entry.

<sup>72</sup> Source: Ibid.



With regard to the questions asked in Section 2.4.1, the answers are identical to those reached for the supply of mortgages.

One question that remains is whether the supply of servicing is becoming or will become less competitive in the future. The 25-firm concentration ratio for servicing has been increasing over the past 11 years (from approximately 11% in 1989 to 31% in 1993).<sup>73</sup> This increase has been steady. This would suggest that the market has been getting less competitive. Given, however, where it is today, this trend would have to continue for quite some time before our conclusions would need to be changed. To know whether this is a long-term trend would require a careful analysis of the servicing market—something that is beyond the scope of this report.

In summary, the supply of servicing appears to be highly competitive. Although current trends seem to point toward greater concentration, the market is so competitive now that it should remain competitive for a long time.

#### *(4) The Supply of Credit Enhancements*

Outside providers of credit enhancement (i.e., insurers of mortgage pools) are suppliers to some private-label conduits. There are 10 firms in this industry.<sup>74</sup> We could obtain no information on their activities by individual firm. As a whole they enhanced only 11% of all private-label securities (on a dollar basis) in 1993.<sup>75</sup>

Given that there are 10 firms and they account for only 11% of the enhancements, we could reasonably doubt that they exercise much market power. This view is strengthened if we consider the alternatives to outside enhancement:

- (1) Corporate guarantees.
- (2) Senior/subordinated interests.

This suggests that the market power of outside providers of credit enhancement is limited.

In terms of the time trend, the senior/subordinated structure has been growing in popularity since 1988.<sup>76</sup> Moreover, the larger private labels, which are accounting for a larger share of the jumbo market (firms such as Citicorp, Residential Funding Corporation (a subsidiary of General Motors), and GE Capital Mortgage Services), have the ability to rely on corporate guarantees if need

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<sup>73</sup> Sources: Ibid. and Fabozzi and Modigliani (1992).

<sup>74</sup> Source: The Mortgage Market Statistical Annual for 1994, Inside Mortgage Finance Publications, Inc. Washington: 1994.

<sup>75</sup> Source: Ibid.

<sup>76</sup> Source: Ibid.

be.<sup>77</sup> In light of this, we do not feel that the outside providers of credit enhancement are likely to gain significant market power in the future.

## **(5) Conclusions**

We find no evidence that suppliers exercise significant market power vis-à-vis the conduits. For the two supply markets for which we have data, mortgages and servicing, the evidence suggests that these markets are very competitive. We feel confident, therefore, in concluding that the conduits capture all the surplus in their relation with their suppliers.

### **2.5. Substitutes and the Demand for Mortgage-Backed Securities**

#### **(1) The Theoretical Arguments for a Flat Demand Curve**

The greater the number and availability of close substitutes to the competitors' product, the flatter will be the demand curve faced by the competitors. Although the slope of the demand curve does not determine the nature of the strategic interaction among competitors,<sup>78</sup> the slope of the demand curve has an impact on the welfare consequences of these strategic interactions.

As we have noted earlier, estimating demand curves for the conduit markets would be difficult even were the necessary data available. Given that the necessary data are not available, it is impossible to estimate these demand curves. However, by examining possible substitutes, we can make theoretical predictions about their likely shapes.

Substitutes for securities backed by conventional mortgages include (in order of closeness):

- Securities *previously* issued by the conduits.<sup>79</sup>
- Ginnie Mae securities backed by FHA/VA mortgages.
- High-grade bonds, including Treasury bonds.
- Other securities.

These substitutes are numerous and widely available. Moreover, for each submarket (i.e., conforming and jumbo), the products of the other submarket are close substitutes. In particular, the abundance of securities backed by conforming mortgages means the demand curve for securities backed by jumbo mortgages should be exceedingly flat. Finally, finance theory predicts that we should expect fairly flat demand curves for financial securities such as these.

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<sup>77</sup> See Chapter 8 of Fabozzi and Modigliani (1992) for a discussion of this issue.

<sup>78</sup> For example, many textbook introductions to Bertrand competition and tacit collusion assume a flat demand curve.

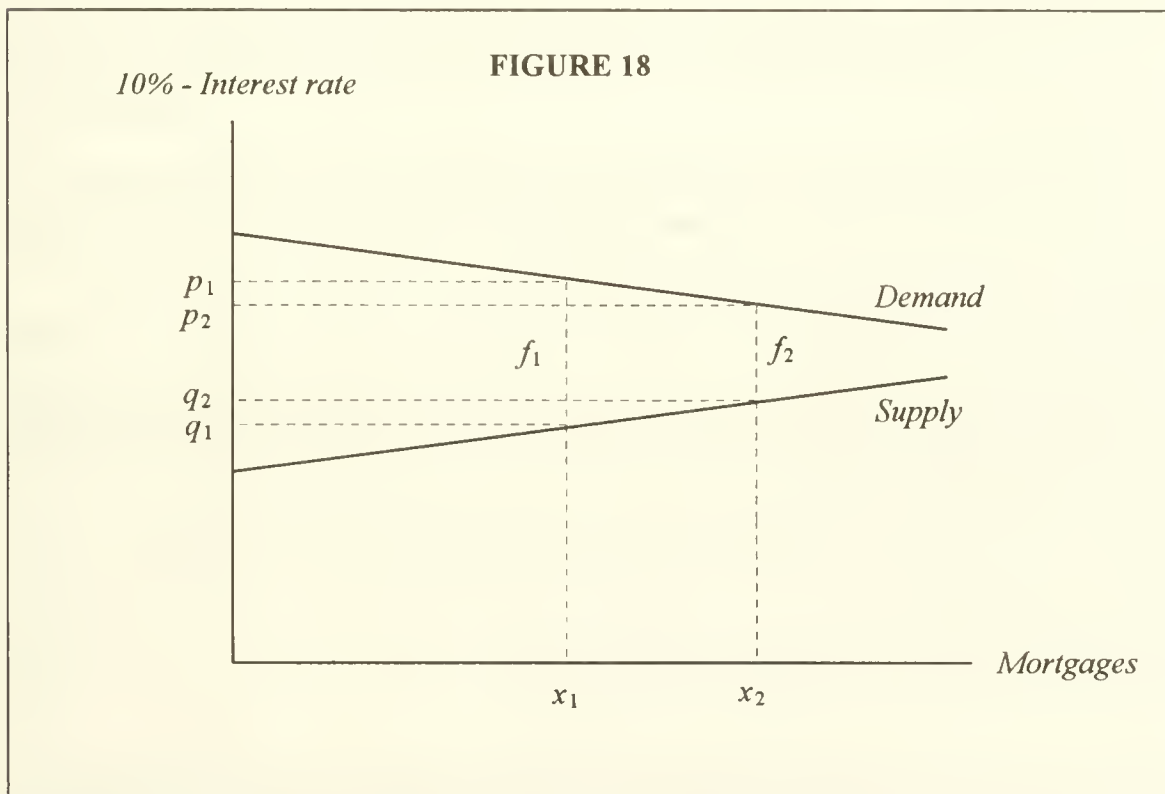
<sup>79</sup> This is known as the *durable-goods problem*: The existence of a resale market creates close substitutes for new products, thereby putting downward pressure on the price of the new products. See Chapter 1 of Tirole (1988) for a more detailed discussion.

## (2) The Empirical Evidence for Flat Demand Curves

Although the theoretical case for relatively flat demand curves seems strong, what about the empirical evidence? As we have repeatedly noted, it is not possible to estimate the demand curves directly with the data available to us. We can, however, look at an indirect measure to gain some sense of the long-run demand curves.

Goodman and Passmore note that Fannie Mae's and Freddie Mac's guarantee fees can be used as a crude measure of price. To see why, consider Figure 18. To make the figure correspond to our usual notions of demand and supply, the price axis (vertical axis) is the negative of interest plus a constant (e.g., 10%). Demand is investors' demand for MBSs. Supply is that component of mortgages offered for securitization that depends on the price offered by Fannie Mae and Freddie Mac (supply is also affected by the economy-wide interest rate, demand for housing, and other such factors outside this figure). The points  $x_1$  and  $x_2$  denote two amounts of mortgages securitized at different points in time. The difference between demand and supply at  $x_i$  is, roughly, the guarantee fee,  $f_i$ . Let  $p_i$  denote the price paid by investors for  $x_i$  and let  $q_i$  denote the price paid to suppliers for  $x_i$ . The elasticity of demand,  $\epsilon_D$ , is given by

$$\epsilon_D = \frac{p_1}{x_1} \times \frac{x_2 - x_1}{p_1 - p_2} > \frac{f_1}{x_1} \times \frac{x_2 - x_1}{(p_1 - p_2) + (q_2 - q_1)} = \frac{f_1}{x_1} \times \frac{x_2 - x_1}{f_1 - f_2} \equiv \epsilon_f.$$



Consequently, the elasticity calculated with respect to the guarantee fee is a lower bound for the true elasticity of demand.

From 1983 to 1990, Fannie Mae's average guarantee fee fell 13.0%,<sup>80</sup> while the value of MBSs issued increased 59.7%.<sup>81</sup> Dividing the latter by the former, we get a "demand elasticity" of at least 4.57, which is exceedingly elastic; that is, consistent with a relatively flat demand curve. Repeating the exercise for Freddie Mac yields a "demand elasticity" of at least 17.9, which is even more elastic.<sup>82</sup> We have put "demand elasticity" in quotes to reflect that these are crude measures (for a variety of reasons— including omitted factors that may have shifted the demand curve over time), which are meant more to be suggestive than definitive. Nevertheless they are consistent with theoretical arguments given above.

In passing, we note that the same trick can be used to approximate the lower bound of the elasticity of supply,  $\epsilon_S$ :

$$\epsilon_S = \frac{q_1}{x_1} \times \frac{x_2 - x_1}{q_2 - q_1} > \frac{f_1}{x_1} \times \frac{x_2 - x_1}{(q_2 - q_1) + (p_1 - p_2)} = \epsilon_f.$$

From our calculations above, we can reasonable conclude that supply is highly elastic; that is, the supply curve is relatively flat.

## 2.6. Buyers and the Demand for Mortgage-Backed Securities

The last set of market participants to consider are the buyers. In particular, the question is whether they possess market power. If they do, then this could affect the analysis and conclusions we have reached so far.

There are many classes of investors in mortgage-based securities. We find no evidence that there is much concentration within any class. Consider just the largest class, commercial banks:<sup>83</sup>

- Commercial banks hold just 25.4% of all MBSs.
- The four-firm concentration ratio for commercial banks (measured against all MBSs held by commercial banks) is 14.7%.
- The *hundred*-firm concentration ratio for commercial banks (measured against all MBSs held by commercial banks) is 58.9%.

We feel quite confident in concluding that there is no buyer-power in the MBS market.

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<sup>80</sup> Calculated from figures given in Goodman and Passmore (1992).

<sup>81</sup> Calculated from figures given in *Fannie Mae 1990 Annual Report*.

<sup>82</sup> Calculated from figures given in Goodman and Passmore (1992) and *Freddie Mac 1993 Annual Report*.

<sup>83</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.



We should note that there are certain classes of investors for whom Fannie Mae's and Freddie Mac's mortgage-based securities are particularly attractive. These are investors who, for legal or other regulatory reasons, are required to hold only government securities or high-grade securities. Although a possible implication of such investors would be to make Fannie Mae's and Freddie Mac's demand curve slope down, our previous analysis (see Section 2.5) suggests that their demand curves are relatively flat. We feel, therefore, that the existence of such investors is not important to our analyses of these markets (although they have some importance in our welfare analysis below).

## 2.7. The Government

Government statutes are very important in the mortgage industry as a whole. One must distinguish, however, between those that affect the *structure* of the industry and those that affect the *performance* of the industry. Our analysis is concerned primarily with the *structure*. Our discussion above, particularly Section 2.3.5, covers what we see as the statutes that are important to the structure of the industry, particularly the conduit markets. After reviewing many of the relevant statutes, including recent regulations such as the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA), the Real Estate Settlement Procedures Act (RESPA), the Community Bank Development Act, the Bank Enterprise Act, and the Riegle-Neal Interstate Banking and Efficiency Act, we feel that these regulations are unlikely to affect the structure of the industry, although they will certainly have important effects on its performance. A more important statute is the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSSA) (Public Law 102–550, Title XIII). We discuss its impact below in Section 3.3.

## 2.8. Conclusions

Our analysis suggests that in analyzing the conventional market today, the market should be split into two: the conforming market and the jumbo market.

Effective natural barriers to entry stemming from their GSE status effectively limit the conforming market to just Fannie Mae and Freddie Mac. An analysis of this submarket from both a theoretical and empirical perspective led us to conclude that Fannie Mae and Freddie Mac were exploiting their protected duopoly position by engaging in tacit collusion. Moreover, there was no obvious dispersion of the surplus they were capturing to either the suppliers or the buyers. The only limit to Fannie Mae's and Freddie Mac's market power came from competition from close substitutes (e.g., Ginnie Mae and securities backed by jumbo mortgages) and from competition from mortgage originators who could otherwise hold mortgages in their portfolios. The relative flatness of their demand curve means that the surplus they captured was limited to the difference between the price and their costs (i.e., their marginal revenue schedule effectively coincides with their demand curve so they are not earning additional profits by restricting output to a level below the competitive level).

Many firms, a lack of effective natural barriers, and an inability to erect strategic barriers to entry have doomed the jumbo market to intense competition. Consequently, there would be little

surplus to disperse among suppliers and buyers even if the suppliers and buyers had market power, which we concluded they did not. As with the conforming market, the demand curve in this market is relatively flat.

We can synthesize this analysis with a simple formal model of the conventional market as it currently exists: Assume flat demand curves. Let  $c_j$  be the marginal cost for securitizing jumbo mortgages and let  $c_c$  be the marginal cost for securitizing conforming mortgages. Because of the cost advantages granted Fannie Mae and Freddie Mac,  $c_c < c_j$ . Finally, let  $P$  be the premium that investors are willing to pay for Fannie Mae's and Freddie Mac's securities due to the perceived government guarantee.<sup>84</sup> Competition in the jumbo market means that the price in that market is approximately  $c_j$  (yielding zero profit to the private labels). The maximum premium that Fannie Mae and Freddie Mac can charge is, therefore,  $c_j + P$  (i.e., the spread between the rate paid by the GSEs for the mortgages and what they charge investors). Through tacit collusion Fannie Mae and Freddie Mac can charge close to this premium, so their per-unit profit is  $c_j + P - c_c > 0$ .

From this model we can see that if privatization lowers or eliminates  $P$ , then the premium Fannie Mae and Freddie Mac can charge falls towards  $c_j$ . We can also see that Fannie Mae's and Freddie Mac's profits are reduced if privatization reduces the federal guarantee premium, raises their costs, or both. We take up the welfare consequences of these changes in Part 5 of this report.

### **PART 3: SOURCES OF COMPETITIVE ADVANTAGE AND DISADVANTAGE FOR FANNIE MAE AND FREDDIE MAC**

The objective of this part of the report is to analyze the strengths and weaknesses of Fannie Mae and Freddie Mac both today, in the conforming market, and tomorrow, in a post-privatization conventional market.

We argued in Section 2.2.3 above that Fannie Mae and Freddie Mac are currently earning positive economic profits. This suggests that their strengths must currently outweigh their weaknesses. What are these strengths? And will they persist in a post-privatization market? Moreover, if privatization deprives Fannie Mae and Freddie Mac of some of their strengths, will their remaining strengths still outweigh their weaknesses?

#### **3.1. Natural Barriers to Entry Revisited**

From Sections 2.2.2 and 2.3.5 above, Fannie Mae and Freddie Mac are profitable because they are duopolists in a market protected by natural barriers to entry that, *on the whole*, are absolutely effective in deterring entry. These natural barriers are thus obvious strengths enjoyed by Fannie Mae and Freddie Mac.

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<sup>84</sup> Technically, we still need some additional assumptions to ensure that only a finite amount of mortgage-backed securities are traded. A host of assumptions would do (including just noting that there is a finite amount of mortgage origination). However, for our purposes, we do not need to go into this amount of modeling detail.

As we noted above, it is difficult to assess these barriers individually. This is a critical issue because many of these barriers would disappear given effective privatization; that is, privatization that convincingly stripped Fannie Mae and Freddie Mac of the implicit guarantees and left them, in terms of the law, on the same playing field with the private-label conduits.

Suppose that effective privatization occurs. In light of the analysis in Section 2.3, possible natural barriers (strengths) left to Fannie Mae and Freddie Mac are as follows:

- (1) Depth of experience.
- (2) Buyer preference due to greater liquidity.
- (3) Large-scale economies (high MES).

With regard to (1), we have previously argued that there are reasons to believe that production-related experience barriers are low in this industry, but admittedly the available evidence is inconclusive. Arguably Fannie Mae's and Freddie Mac's depth of staff, lender relations, and technology are much greater than those of the private-label conduits. On the other hand, staff can be raided, vertical integration into origination (see Section 4.2) may give some private conduits better lender relations, and technology is readily copied in this industry. Consequently, although we concede that the evidence is ambiguous, our best estimate is that depth of experience will not prove to be a significant barrier to entry.

Whether (2) is a post-privatization barrier depends somewhat on whether the implicit guarantee remains with past Fannie Mae and Freddie Mac securities. If it does, then the GSEs' established base of securities would be, to a degree, different products from their new, riskier securities. Consequently, the liquidity preference would be greatly reduced. If the guarantee is lifted, then the liquidity preference would remain. Regardless of how privatization is carried out, we do not believe this premium is particularly significant (see Section 2.3.5 above); that is, its value is small. In terms of the simple model sketched out in Section 2.8, this would correspond to a small value of  $P$ . If, in addition, privatization caused the gap between the former GSEs' costs and the private labels' costs to close, then Freddie Mac's and Fannie Mae's profits would be only slightly greater than the private labels; in large measure they would then be in the midst of the competitive private-label market.

This leaves (3). As we discussed in Sections 2.3.2 and 2.3.3, it is difficult to determine whether Fannie Mae and Freddie Mac enjoy scale economies relative to the private-label conduits. The evidence from the jumbo market suggests that if scale economies exist they are not effective as barriers to entry. In this sense the evidence from the jumbo market suggests that scale economies are minimal. Unfortunately, since Fannie Mae and Freddie Mac operate at an order of magnitude greater than the private-label conduits, there is a danger in extending this conclusion to them. In particular, there is the possibility that significant scale economies arise somewhere between the output levels of the private labels and the output levels of Fannie Mae and Freddie Mac.



### 3.2 The “Quiet-Life” Hypothesis and the Efficiency of Fannie Mae and Freddie Mac

Economic theories have long existed that relate the structure of a firm’s product market to the way it operates.<sup>85</sup> In particular, theory argues that the structure of the product market can affect a firm’s efficiency and thus its costs. Because Fannie Mae and Freddie Mac’s market structure (tacitly colluding duopoly) is fairly different from the private label’s market structure (competition), it is worth reviewing these theories to see whether the differences in their markets translate into greater or less efficiency; that is, are Fannie Mae and Freddie Mac at an advantage or disadvantage vis-à-vis the private labels because of differences between their market structures?

One theory that seeks to relate the structure of its product market to a firm’s efficiency is the so-called quiet-life hypothesis based on Hicks (1935). Hicks noted that one of the possible benefits to market power and little competition was what he called the “quiet life”: A lack of competition allowed managers of firms in such situations to take it easy; that is, free from the survival of the fittest, they could relax. The price for this relaxation is loss of efficiency and, hence, higher costs.<sup>86</sup>

Modern *theoretical* examinations of this hypothesis have found that this hypothesis ignores two factors: First, since cost minimization is necessary to profit maximization, all firms, regardless of the intensity of competition that they face, should seek to minimize costs; that is, to be efficient. Second, the greater a firm’s output, the more it benefits from cost-reducing efficiency (e.g., the value of reducing unit costs by \$1 is greater if one produces one million units than if one produces one thousand units). Since firms with market power are typically large firms, while competitive firms are typically small firms, the incentive to promote efficiency could be increasing as market power increases. Hermalin (1992) shows that theory alone cannot determine which of these three effects (the quiet-life effect, the cost-minimization effect, and the size effect) is dominant.

The answer, therefore, must be uncovered empirically industry by industry. The empirical paper that is most relevant to our analysis is Berger and Hannan (1994). They find evidence that commercial banks operating in more concentrated (i.e., less competitive) markets are much less efficient than commercial banks operating in less concentrated (i.e., more competitive) markets. Moreover, they estimate the cost of this inefficiency to be large: Depending on their estimation technique, additional costs due to inefficiency account, on average, for between 1.3% and 4.6% of operating costs. On a nationwide basis, the cost of inefficiency could be as much as \$4.477 billion.

Admittedly, Berger-Hannan is just one study, which, moreover, does not directly address the conduit industry.<sup>87</sup> Nonetheless, at a minimum it indicates that investigating whether Fannie Mae and Freddie Mac’s “cozy” environment has left them less efficient than the survivors of the “rough and

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<sup>85</sup> See Hermalin (1992) for a partial overview.

<sup>86</sup> A related concept is Leibenstein’s (1966) X-inefficiency.

<sup>87</sup> Whether or not the quiet-life hypothesis applies to Fannie Mae and Freddie Mac is an empirical question that no one can answer: All the empirical techniques of which we are aware for assessing efficiency are useless given a sample of just two firms.



tumble” jumbo market has merit. At a maximum it indicates that a privatized Fannie Mae and Freddie Mac could actually suffer serious cost disadvantages versus the private labels: Carrying over the most extreme set of Berger and Hannan’s estimates would indicate that Fannie Mae and Freddie Mac could lower their post-privatization costs by 6.1% if they could match the greater efficiency of the private labels. Whether this is indeed true cannot be known for sure. Moreover, it should be remembered, when speculating on the costs of the quiet-life hypothesis, that at least one author (Woodward 1987) has argued that Fannie Mae and Freddie Mac are efficient conduits. Finally, since we feel confident from 2.2.3 that Fannie Mae and Freddie Mac are making positive economic profits, the magnitude of the quiet-life effect (if it exists) cannot be exceptionally great.

### 3.3. Capital Adequacy and Deep Pockets

The loss of federal guarantees will increase the riskiness of Fannie Mae’s and Freddie Mac’s securities. This will have two main, negative, effects on Fannie Mae and Freddie Mac:

- It will raise their cost of funds.<sup>88</sup>
- It will reduce the premium they can charge for their mortgage-based securities.

How big these effects will be depends on just how risky Fannie Mae and Freddie Mac are perceived to be. It is not within the scope of this report to answer these questions and the reader is directed to Ambrose and Warga (1996). What we can consider, albeit theoretically, is how these changes will affect the competitive standing of Fannie Mae and Freddie Mac vis-à-vis potential competitors.

How risky Fannie Mae and Freddie Mac are perceived to be will depend on how well capitalized these firms are. Both firms are currently solvent; that is, assets exceed liabilities. This, however, has not always been the case: Kane and Foster (1986) estimate that Fannie Mae was technically insolvent in the late 1970s and early 1980s. Both firms currently exceed the minimum capital level under FHEFSSA. Had this standard, however, been in place in the past, then both Fannie Mae and Freddie Mac would have fallen below the standard: Fannie Mae was below the standard in 1990 (although above it ever since), and Freddie Mac was below it in 1990 and 1991 (although above it ever since).<sup>89</sup>

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<sup>88</sup> Ambrose and Warga (1996) estimate that Fannie Mae’s weighted cost of capital will increase by 1.5%.

<sup>89</sup> Based on calculations using data from *Freddie Mac 1993 Annual Report* and *Fannie Mae Investor/Analyst Reports* for 1990–1993.

Their current capitalization—measured as the ratio of net worth to assets<sup>90</sup>—compares favorably to a small sample of securities firms that issue private-label MBSs:<sup>91</sup> Fannie Mae’s ratio of net worth to assets was 3.7% in 1993, whereas the average for this sample was 3.3%; and Freddie Mac’s ratio was 5.3%, which exceeds the ratio for all the firms in this sample. Admittedly, the GSEs’ large portfolios and massive off-balance-sheet obligations mean this comparison with private-label firms should be taken as merely suggestive rather than conclusive.

In short, while Fannie Mae and Freddie Mac may have had capitalization problems in the past, their current capitalization exceeds the minimum level of capitalization and compares favorably with the capitalization of at least some of their potential product-market rivals (although it should be noted that their capitalization requirement is lower than that of depository institutions, to which they might also be compared).

Some of Fannie Mae and Freddie Mac’s potential rivals, such as GE Capital Mortgage Services and Residential Funding Corporation, are subsidiaries of giant firms. This means that they may enjoy both easier access to the capital markets through their parents and, moreover, may be perceived as being implicitly backed by their parents. Certainly if one looks at the MBSs issued by these firms in 1993, one finds that they tend to be rated AAA.<sup>92</sup> On the other hand, if one looks at the securities offered by smaller firms, one finds that they too are often rated AAA. What this comparison omits, however, is possible differences in the cost of obtaining credit enhancements sufficient to achieve these high ratings. In particular, the larger firms may have lower credit-enhancement costs. We can find no evidence for or against this proposition; however, by revealed behavior it cannot serve as a serious barrier to entry or competition. Consequently, we probably do not want to put too much weight on the “deep pockets” of some of the GSEs’ potential rivals.

There is also the question of whether Fannie Mae and Freddie Mac would be able to raise sufficient capital if they were privatized and lost the government’s credit backing. Although Fannie Mae and Freddie Mac already face government-imposed capital standards, including an allocation for off-balance-sheet obligations, the required capital ratio is no doubt lower than the ratio that capital market investors would expect after the two firms were privatized. It is difficult to know how much additional capital would then be required, because it would depend on the post-privatization capital ratios with which the firms were left. However, we have just argued that the jumbo market conduit firms have dealt adequately with capital issues, and we know of no reasons why this would not be equally true for Fannie Mae and Freddie Mac.

In summary, Fannie Mae and Freddie Mac, absent federal guarantees, do not enjoy a capitalization advantage vis-à-vis their potential rivals. They therefore are exceedingly unlikely to be

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<sup>90</sup> This measure, unfortunately, does not account for mortgage-backed securities (i.e., off-balance-sheet items). On the other hand, the comparison group also has off-balance-sheet items (including mortgage-backed securities) so this is probably not too great a problem.

<sup>91</sup> Bear Stearns, Merrill Lynch, Paine Webber, and Salomon Brothers.

<sup>92</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

perceived as safer than their rivals. On the other hand, it is unlikely that they would suffer a capitalization disadvantage. On net, capital adequacy and deep pockets should be a source neither of competitive advantage nor disadvantage.

### 3.4. Conclusions

It is difficult to predict both whether Fannie Mae and Freddie Mac will enjoy any competitive advantages over their rivals and whether they will suffer any disadvantages. Although theoretical arguments can be made for their current size being an advantage, there is no empirical evidence with which to back up these arguments. Similarly, theoretical arguments based on the quiet-life hypothesis would suggest that Fannie Mae and Freddie Mac are inefficient and would therefore enter a post-privatization environment at a disadvantage. There is empirical evidence for these arguments, but it is tenuous.

In some sense—unless we want to run afoul of Sherlock Holmes’s admonition against premature theorizing<sup>93</sup>—the purpose of this section is really to suggest what questions should be asked, rather than guessing at answers without data.

Of course the real question is not whether Fannie Mae and Freddie Mac enjoy or suffer advantages or disadvantages—almost surely they do—but whether these advantages or disadvantages are so great that they will have a significant impact on competition in the post-privatization conventional market. That is, for instance, are their advantages so great that they could “duopolize” this broader market? Or, for instance, are their disadvantages so great that they will be driven from the market? If either scenario were very likely, we suspect that the evidence for it would be stronger than it is now. Hence, we feel somewhat sanguine that a lack of definitive answers will not seriously affect the analysis below.

## PART 4: POSSIBLE TRENDS IN VERTICAL INTEGRATION

In this part of the report, we investigate possible trends in vertical integration.<sup>94</sup> The next section outlines the basic theory. In Section 4.2 we investigate integration by private-label firms. In Section 4.3 we investigate possible integration by Fannie Mae and Freddie Mac.

### 4.1. Basic Issues

In industrial organization theory, there are three reasons firms vertically integrate:

(1) Eliminate double marginalization.

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<sup>93</sup> “It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.” (*Study in Scarlet*, Chapter 3, 1888).

<sup>94</sup> Vertical integration refers to either a merger between a firm and one of its suppliers or a firm’s decision to do a supplier’s function inhouse.

(2) Extend market power from one market to another.

(3) Achieve synergies, including economies of scope and the reduction of transaction costs.

Item (1) refers to situations in which both a firm and its supplier have market power in their respective markets. When the supplier exercises its market power, it captures some of the surplus that possibly could be gained from the supplier-and-firm exchange, but some of the surplus disappears as a deadweight loss; that is, the usual market power inefficiency exists. By merging the supplier and the firm, the supplier can be compelled to price at marginal cost, thereby allowing the full surplus to be captured.<sup>95</sup> Since, however, we have found no evidence of significant market power on the part of suppliers (originators, servicers, and credit enhancers)—see Section 2.4—the elimination of double marginalization cannot be an important motive in this context and we will not pursue it further.

Item (2) refers to situations in which a firm with market power in one market can, through a vertical merger, extend this market power into another industry. To see how this can be done, picture the vertically related industries as points on a river, with suppliers upstream and the ultimate consumers downstream. If a firm has market power at any point on this stream, then it can use its ability to determine passage through its point of control to give advantages to its vertically related subsidiaries. With these advantages the subsidiaries can gain market power at their point on the stream. A classic historical example of this was IBM's extension of its market power in the manufacture of computers into the manufacture of computer peripherals and computer software, because both had to be "plugged" into IBM computers.<sup>96</sup> The theoretical literature, however, has recently become more suspicious of the claim that firms can so extend their market power from one market to another.<sup>97</sup>

Synergies, item (3), refer to the reduction in costs from running a firm and its supplier as one company rather than two. One reason costs could be reduced is economies of scope: Experience with the industry broadly defined allows managers to control various points in the vertical stream; thus duplication of some management that would exist without integration is eliminated. Transaction costs refer to the idea, popularized by Coase (1937), Williamson (1975), and others, that contracting and other transactions costs can sometimes be reduced by going inhouse rather than relying on the market. For instance, a conduit may have fewer instruments at its disposal for dealing with a poorly performing mortgage servicer when it is an independent firm than it would if that servicer were inhouse (e.g., it can directly punish the servicer's management). Because of its greater control over the servicer when it is inhouse, the costs of the servicer's services could be less than when it was an independent firm.

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<sup>95</sup> For a more thorough introduction to double marginalization see Chapter 4 of Tirole (1988).

<sup>96</sup> Microsoft is alleged to use its strong market position in operating systems for personal computers in a similar manner to gain market power in application software, such as wordprocessing and spreadsheets.

<sup>97</sup> See, e.g., Chapter 4 of Tirole (1988).



## 4.2. Integration by Private-Label Conduits

Vertical integration is prevalent among private-label conduits. Among the 33 non-RTC private-label conduits operating in 1993, 8 are among the top 25 mortgage originators and 9 are among the top 25 mortgage servicers.<sup>98</sup> Moreover, these conduits are among the largest conduits. What explains this level of vertical integration?

We have already indicated above that we doubt this integration is an attempt to eliminate double marginalization. Given that neither the upstream (i.e., origination and servicing) nor the downstream (i.e., the market for securities backed by jumbo mortgages) has market power to begin with, explanation (2) from the beginning of this part cannot be valid. This leaves explanation (3). This idea that synergies, economies of scope, and reduced transactions costs are motives for integration is supported by Toevs and Zizka (1994), who argue that there are important synergies, particularly between origination and servicing.

What are the consequences of vertical integration for conduits specifically and the mortgage market generally? Presumably, one consequence is lower industry costs—a benefit also noted by Toevs and Zizka. This will improve welfare. Moreover, to the extent that these markets remain competitive, at least some of this improvement in welfare should be captured by homebuyers. There is, however, the possibility that this integration could lead to greater concentration in the various markets. Toevs and Zizka argue that this will indeed be one consequence of greater integration. Our own analysis (see Sections 2.2.4, 2.4.2, and 2.4.3) is consistent with this view: There has been a trend toward greater concentration in these markets coinciding with the trend toward greater integration identified by Toevs and Zizka. On the other hand, two points must be kept in mind: First, even as they get more concentrated, these markets continue to appear quite competitive. Moreover, as we discussed in Part 2, the fundamental structures of these markets (i) suggest a limit as to how concentrated these markets might become and (ii) suggest a limit as to how uncompetitive these markets might become as a consequence. Somewhat consistent with this view is Toevs and Zizka's prediction that profits will actually fall for mortgage originators. The second point to keep in mind is that, as Harberger (1954) pointed out long ago, the welfare loss from greater concentration is almost always small.<sup>99</sup> Indeed, we feel quite confident that whatever the welfare loss is from greater concentration resulting from greater integration, it will be outweighed by the welfare gain from lower costs resulting from greater integration.

## 4.3. Integration by Fannie Mae and Freddie Mac

Once privatized, Fannie Mae and Freddie Mac would presumably be free to integrate vertically into origination and servicing if they desired. Here we consider what reasonable motives for such integration would be and what the likely welfare consequences might be.

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<sup>98</sup> Source: *The Mortgage Market Statistical Annual for 1994*, Inside Mortgage Finance Publications, Inc. Washington: 1994.

<sup>99</sup> See Farrell (1995) for a survey of more recent work that reaches the same conclusion.

Again, since origination and servicing are reasonably competitive, motive (1) from the beginning of this part is not applicable. What about motive (2)? Clearly, the answer depends in part on how much market power we anticipate Fannie Mae and Freddie Mac having in the post-privatization conventional market. If their market power is limited, then motive (2) is not an issue. Suppose, therefore, that they will have considerable market power (e.g., their economies of scale allow them to nearly duopolize the conduit market). To attempt, then, to extend this market power to origination, for instance, they would have to offer their origination subsidiaries better deals on the mortgages they purchased from them than on those they purchased from other originators. That is, they would effectively cross-subsidize their origination subsidiaries. In this way their subsidiaries could grow at the expense of other originators. Eventually, their subsidiaries would have considerable market power.

There are a number of problems, however, with this scenario:

- (1) As what they were doing became known, Fannie Mae and Freddie Mac would be vulnerable to antitrust action (brought either privately or by the government) under Section II of the Sherman Antitrust Act. They could also face private action under the Robinson-Patman Act.
- (2) How do Fannie Mae and Freddie Mac preserve their market power in origination? Given the structure of this industry, particularly the ease of entry,<sup>100</sup> Fannie Mae's and Freddie Mac's origination subsidiaries could be constrained on how much they could charge consumers for mortgages—to attempt to exploit their market power could simply generate price-eroding entry (re-entry). Fannie Mae and Freddie Mac might be able to block entry, but only by continuing their costly cross-subsidization. In other words, given the lack of natural barriers to entry into origination, the cost of gaining and retaining market power would likely exceed the benefit of having market power.
- (3) Were 100% of all mortgages securitized, then Fannie Mae and Freddie Mac would have no incentive to seek market power in origination: Industrial organization theory tells us that tacitly colluding duopolists who buy 100% of the output from a competitive supplier market are already capturing all the surplus that there is to be had from the supplier market.<sup>101</sup> They therefore cannot capture any more surplus through the direct application of market power in the supplier market. Admittedly, less than 100% of mortgages are securitized, but the proportion is so high that this argument should be approximately true.

Individually, these three problems are compelling arguments against motive (2) from the beginning of this part; together they are devastating. We feel, therefore, that it is very unlikely that Fannie Mae and Freddie Mac would integrate into origination or servicing with the intent of extending market power to these industries.

This is not to say that Fannie Mae and Freddie Mac would not integrate into origination or servicing. Presumably, synergies, economies of scope, and reduced transactions costs are motives for

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<sup>100</sup> See, e.g., Toevs and Zizka (1994) for evidence on the ease of entry.

<sup>101</sup> See, e.g., Chapter 4 of Tirole (1988).

them too. Moreover, by not integrating, Fannie Mae and Freddie Mac could put themselves at a competitive disadvantage vis-à-vis their integrated private-label rivals. We would, therefore, expect some degree of integration by Fannie Mae and Freddie Mac into these areas. As we concluded in Section 4.2, although such integration might contribute to increased concentration (including, possibly, quite high concentration), the negative welfare consequences due to increased concentration are likely to be outweighed by the positive welfare consequences.

#### **4.4. Conclusions**

Our analysis suggests that although greater integration is likely in this industry and although Fannie Mae and Freddie Mac can be expected to integrate if privatized, this integration will be motivated by synergies, economies of scope, and reduced transactions costs. Anticompetitive motives are not likely. As such, this integration will enhance welfare by reducing costs. Admittedly, this integration could have a secondary effect of greater concentration, but we expect this effect to (i) be small; (ii) leave these markets still fairly competitive; and (iii) have negative welfare consequences that are smaller than the welfare gains realized from more efficient operations.

### **PART 5: THE CONDUIT MARKET AFTER PRIVATIZATION**

In this part of the report, we build on our previous analysis to make predictions about the possible structure of the conduit market after privatization and the welfare consequences of that structure. Making predictions about how an industry will look after a major change such as this is a difficult exercise (consider the predictions of the Airline Industry's structure after deregulation). Moreover, deregulation of the secondary mortgage markets is sufficiently different from other deregulations that it is difficult to make predictions based on close analogies. Consequently, where necessary, we will consider different scenarios for what might transpire after privatization.

#### **5.1. What Does Privatization Mean?**

It would generally be agreed that privatization means ultimately reducing government involvement in the conduit market, particularly to ensure, somehow, that the implicit federal guarantee is lifted in a manner that is convincing to the markets. How that is accomplished and the degree to which government involvement is reduced are, however, more contentious. As Stanton (1996) points out, there are many ways in which the mechanics of privatization could work. Because, to a large extent, these issues are outside the scope of this report, we will consider only two possible implementations of privatization:

- (1) Fannie Mae and Freddie Mac are privatized "as is"; that is, they remain large, but their GSE status is removed, their activities are deregulated, and the implicit federal guarantee is lifted.
- (2) Fannie Mae and Freddie Mac are shrunk prior to privatization; that is, they are small when privatized, their GSE status is removed, their activities are deregulated, and the implicit federal guarantee is lifted.



In considering (1), one must confront the question of whether the implicit federal guarantee can indeed be lifted. In particular, if Fannie Mae and Freddie Mac are considered “too big to fail,” then the federal government may bail them or investors out in case of a collapse. Certainly, this is not without precedent: Both Continental Illinois and Chrysler are examples of large private corporations that were bailed out in some form or another after a collapse. It is therefore possible that lifting an *implicit* guarantee is impossible.

There are, however, four points to consider. First, a too-big-to-fail guarantee is probably not as good as Fannie Mae and Freddie Mac’s current guarantee. Consequently, it may not be as much of a barrier to entry as the GSEs’ current guarantee. Second, the intertemporal dynamics of the situation could erode this too-big-to-fail guarantee: As more conduits entered against Fannie Mae and Freddie Mac, they could seem less big, so the too-big-to-fail guarantee could shrink and thus be less of an entry barrier, so more firms could enter, reducing the barrier even further, and so forth. Third, many of Fannie Mae and Freddie Mac’s private-label rivals could also be considered too big to fail. For instance, General Electric, General Motors, or Prudential could easily have that status. Consequently, the too-big-to-fail guarantee may not be an entry barrier against some of the largest potential competitors to Fannie Mae and Freddie Mac. Finally, the too-big-to-fail doctrine may not be viable in this era of reduced government and federal deficit cutting. Indeed, if the Balanced-Budget Amendment is passed, future governments may be unable to bail out firms even if they are considered too big to fail.

Although we find these four points persuasive, we admit that it is impossible to predict whether a privatized Fannie Mae or Freddie Mac will be protected by a too-big-to-fail guarantee that is (essentially) as good as their current guarantee. We can, however, say what the likely consequences of the two possibilities are. If the implicit guarantee *cannot* be lifted, then the industry will be pretty much the same as in Part 2 of this report (except that Fannie Mae and Freddie Mac could also duopolize the jumbo market). The welfare analysis in that case will be similar to the analysis we present below in Sections 5.2.3 and 5.2.4.

## 5.2. A Theoretical Framework for Assessing Welfare and the Consequences of Market Power

Here we sketch out a simple model that allows us to assess welfare and the consequences of market power. A simple model provides the important insights without encumbering the reader with nonessential complexities.

### (1) *The Framework*

In this model the designation of “demand” and “supply” is a semantic issue. Because, in contrast to Figure 18, it is most natural to have the (positive) interest rate on the vertical (price) axis, we will consider the suppliers to the conduits as being the demanders for mortgage funds. Let  $R_D(m)$  be the rate they are willing to pay for  $m$  in mortgage funds (i.e.,  $R_D(\cdot)$  is the inverse demand sched-



ule).<sup>102</sup> Recall that the “competition” that the conduits face from originators who choose to hold mortgages in portfolio is reflected through this demand schedule (see Section 2.4.2). We will consider the buyers of MBSs to be the suppliers of mortgage funds. Let  $R_S(m)$  be the rate they require to supply  $m$  in mortgage funds (i.e.,  $R_S(\cdot)$  is the inverse supply schedule).<sup>103</sup> Note that these schedules are the reverse of Figure 18. From Section 2.5.2, we believe that  $R_D(\cdot)$  and  $R_S(\cdot)$  are relatively flat *at least over the relevant range* (more on this later).<sup>104</sup> The interest rate can essentially be divided into two components:  $i$  the interest component determined by general macroeconomic conditions and  $p_x(m) = R_x(m) - i$ .<sup>105</sup> The schedule  $p_D(m)$  is the interest premium that the demand side is willing to pay for mortgage funding, while  $p_S(m)$  is the interest premium that the supply side requires for supplying mortgage funds.

Although  $R_D(\cdot)$  and  $R_S(\cdot)$  (and, thus,  $p_D(m)$  and  $p_S(m)$ ) are relatively flat over the relevant range, both demand and supply are ultimately finite. There must therefore be some level of mortgage funding,  $m^*$ , such that the slopes of these curves are significantly steeper for  $m \geq m^*$ .<sup>106</sup>

Let the conduits’ aggregate marginal cost schedule exclusive of what they pay the security buyers be  $c(m)$ .<sup>107</sup> We can think of  $c(\cdot)$  as the marginal “other-costs” schedule. The sum of  $c(\cdot)$  and  $p_S(\cdot)$  is the conduits’ aggregate marginal cost schedule. As our discussion in Sections 2.3 and 3.1 makes clear, the shape of this schedule is unclear. It is flat if there are constant returns to scale, downward sloping if there are increasing returns to scale, and upward sloping if there are decreasing returns to scale. In the relevant regions, however, we cannot observe increasing returns to scale: otherwise we would see the emergence of natural monopolies. We therefore feel that it is reasonable to assume that  $c(m) + p_S(m)$  is non-decreasing in  $m$ . Putting all the elements together and fixing  $i$ , we get a figure similar to Figure 19.

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<sup>102</sup> This demand, which stems ultimately from the demand of homebuyers and owners for mortgage funding, is also dependent on other factors (e.g., the demand and supply of housing). For our purposes, however, we can treat these other factors as if they are fixed.

<sup>103</sup> This supply is also dependent on other factors (e.g., the prices and returns on other securities). For our purposes, however, we can treat these other factors as if they are fixed.

<sup>104</sup> Zumpano et al. (1986) support our claim for a relatively flat  $R_D(\cdot)$ . They report on p. 93 that “[m]ortgage loan demand ... prove[s] to be highly responsive to small changes in mortgage interest rates.”

<sup>105</sup> At some level the mortgage market must feed back on the determination of  $i$ . However, given that  $i$  is determined by the global macroeconomic economy, the impact of the American mortgage market is likely small enough for us to treat  $i$  as independent of  $m$ .

<sup>106</sup> Admittedly,  $m^*$  could vary for the two schedules. For convenience, however, we take it to be the same for the two schedules.

<sup>107</sup> The aggregation is done by horizontally summing the individual conduits’ marginal cost schedules net of what the security buyers are paid.

FIGURE 19

Premia

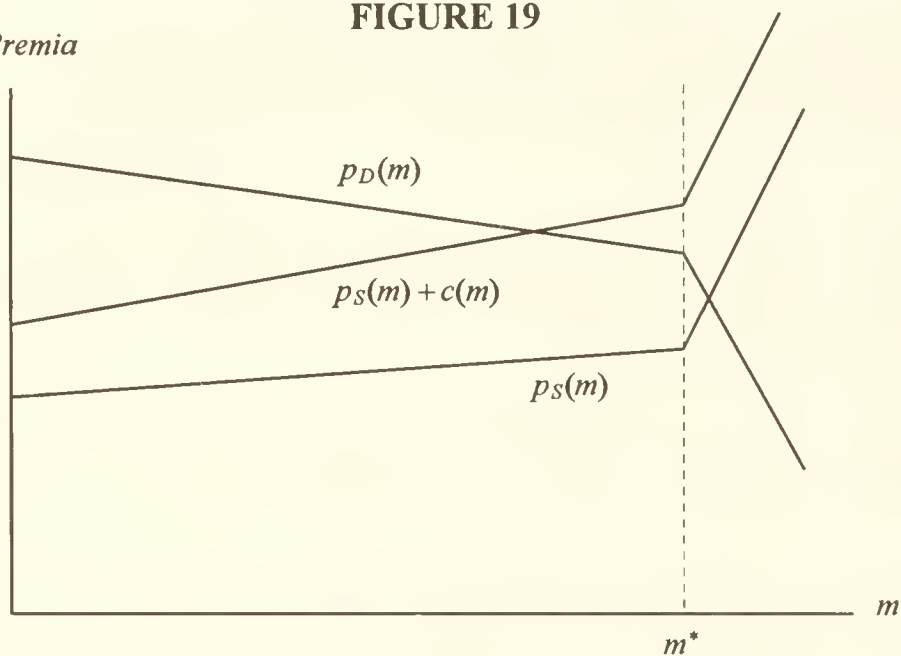
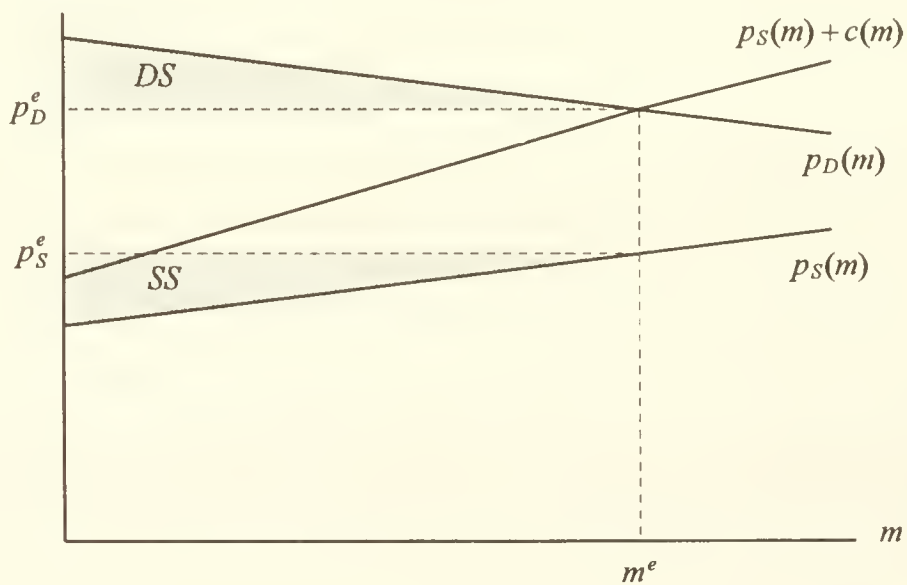


FIGURE 20

Premia



### (2) Welfare in a Competitive Market (the Current Jumbo Market)

We consider first a competitive conduit market similar to the jumbo market. Because the market is competitive, the value of mortgages securitized is found by the intersection of  $p_D(m)$  and  $c(m) + p_S(m)$ , an amount denoted by  $m^e$  in Figure 20. The premium paid by the demanders is  $p_D^e = p_D(m^e)$  and the premium received by the suppliers is  $p_S^e = p_S(m^e)$ . These premia are illustrated in Figure 20. The division of surplus is as follows: The demanders' surplus,  $DS$ , is the triangular region below their demand schedule and above  $p_D^e$  from 0 to  $m^e$  (see figure); the suppliers' surplus,  $SS$ , is the triangular region above their supply schedule and below  $p_S^e$  from 0 to  $m^e$  (see figure); the remaining area—the rectangular region whose height is  $p_D^e - p_S^e$  and whose width is  $m^e$ —belongs to the conduits. Much of this last region is just compensation that covers costs (indeed, if  $c(\cdot)$  is flat, it is all just compensation to cover costs); the rest is the conduits' profits. Given that, as we argued in Section 2.4, origination, service, and other supply markets are fairly competitive themselves, some amount of  $DS$  is passed on to mortgage borrowers in the form of lower interest rates (a smaller premium).

### (3) Welfare in a Fully Monopolized Market

Next we consider a monopolized conduit market (or, equivalently, a conduit market with a tacitly colluding duopoly). To keep the analysis straightforward, but without changing the conclusions, suppose that the other-costs schedule is constant; i.e.,  $c(m) = c$  for all  $m$ . The monopoly conduit seeks the level of securitization that maximizes its profit, that is, that maximizes

$$\pi(m) \equiv [p_D(m) - p_S(m) - c] \cdot m.$$

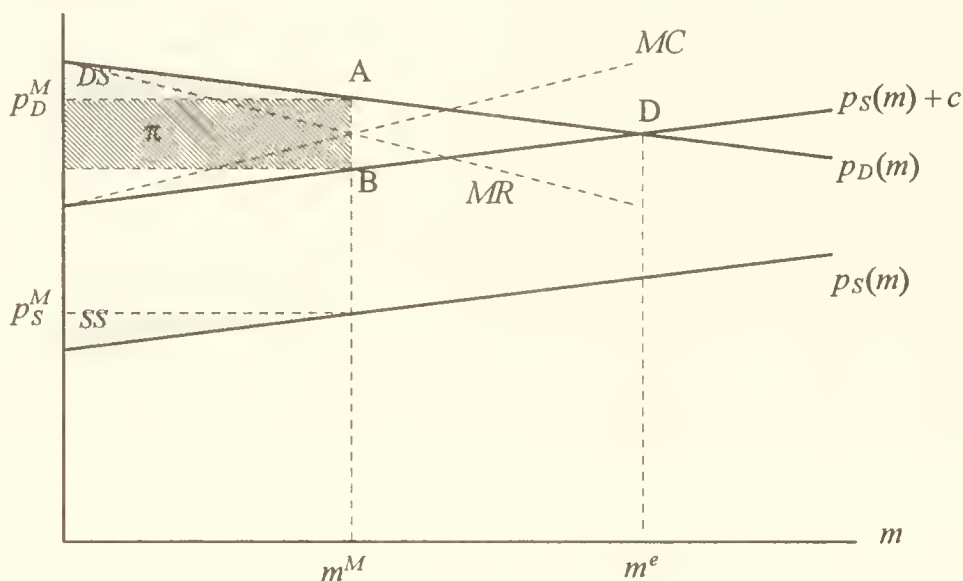
To maximize its profit, the monopoly securitizes up to the point where *marginal* profit from further securitization is 0; that is, mathematically, it securitizes to  $m^M$ , where  $m^M$  solves

$$[p_D(m^M) + mp'_D(m^M)] - [p_S(m^M) + mp'_S(m^M) + c] = 0.$$

$$\text{(marginal revenue)} \qquad \text{(marginal cost)}$$

As we have noted, the solution is also given by the familiar marginal revenue equals marginal cost condition. Because demand curves slope down—at least slightly—the marginal revenue schedule is more steeply sloped than the demand curve. This is indicated in Figure 21 by the curve  $MR$ . The difference between demand and marginal revenue reflects the usual monopoly tension: To securitize an additional mortgage, the monopolist must offer a better deal to originators (i.e., a lower premium), not only on the marginal mortgage but also on all the infra-marginal mortgages. Consequently, the benefit of securitizing an additional mortgage is less than the premium received from that additional mortgage. Similarly, because supply curves slope up—at least slightly—the marginal cost schedule is more steeply sloped than  $c + p_S(m)$ . This is indicated in Figure 21 by the curve  $MC$ . The difference between the curves reflects the monopsony tension inherent in this situation: To sell an additional security, the monopsonist must offer a better deal to security buyers (i.e., a higher premium), not only on the marginal security but also on all the infra-marginal securities. Consequently, the cost of selling an additional security is greater than the premium plus other costs that it must pay to sell that additional security.

FIGURE 21



Comparing Figure 21 to Figure 20, it is evident that a smaller quantity is traded under monopoly, the premium paid by the buyers is greater under monopoly, and the premium received by the sellers is less under monopoly; that is,  $m^M < m^e$ ,  $p_D^M = p_D(m^M) > p_D^e$ , and  $p_S^M = p_S(m^M) < p_S^e$ . Because a smaller quantity is traded relative to the competitive situation, the monopoly situation must represent a welfare loss. The division of the surplus under monopoly is as follows: Demander surplus ( $DS$ ) is reduced; seller surplus ( $SS$ ) is reduced; the rectangular region denoted  $\pi$  (with width  $m^M$ , and height equal to  $p_D^M - p_S^M - c$ ) is pure profit; the rectangular region with width  $m^M$  and height  $c$  is compensation for costs; and, finally, the triangular region  $ABD$  is the deadweight loss from monopoly.

As Figure 21 makes clear, monopoly reallocates the surplus vis-à-vis competition. This is presumably an important concern for policymakers. In particular, the reduction in the demanders' surplus, because this reflects higher borrowing costs for homeowners, is likely a major concern for policymakers.

Reallocation is not, however, a concern from the narrow perspective of welfare analysis. What is a concern is the deadweight loss: This is surplus that would be available under competition that is lost entirely under monopoly. Because we cannot estimate the demand, the supply, and the other-costs (i.e.,  $c(\cdot)$ ) schedules, we cannot estimate the size of the deadweight loss. We do know that in most situations this loss is typically small (see, e.g., Harberger 1954). Indeed, Farrell (1995) argues that issues such as the quiet-life hypothesis (see Section 3.2) have a bigger impact on welfare than does the deadweight loss.



#### (4) Welfare Given the Current Conforming Market Structure

The preceding monopoly analysis does not, however, describe Fannie Mae and Freddie Mac as they exist *today*, although it would describe them in the future were they able to monopolize the entire conventional market. To understand the market today, recall the simple model sketched in Section 2.8: Fannie Mae and Freddie Mac are tacitly colluding duopolists whose market power is limited, to some extent, by possible competition from private-label conduits. Although, as we discussed there, there are reasons to believe that Fannie Mae and Freddie Mac have lower costs than their private-label rivals, for convenience we will treat all conduits as having the same other-costs schedule. Indeed, to keep the analysis straightforward, we will assume that these other costs are constant (i.e.,  $c(m) = c$  for all  $m$ ). These assumptions do not affect the fundamental aspects of our conclusions.

As in Section 2.8, let  $P$  denote the premium that investors are willing to pay for “guaranteed” securities from Fannie Mae and Freddie Mac. That is, the supply schedule for Fannie Mae and Freddie Mac is  $p_S(m) - P$  (recall it is the supply of funds by investors). To forestall entry into the conforming market, Fannie Mae and Freddie Mac must set prices so that the private-label conduits would find it unprofitable to enter; that condition is

$$[p_D(m) - p_S(m) - c] \cdot m \leq 0$$

(i.e., the private-label conduits’ profits from entry are not positive).<sup>108</sup> This need not be a binding constraint (i.e., it could be optimal for Fannie Mae and Freddie Mac to price—equivalently, choose a level for  $m$ —such that the above expression is met as a strict inequality). We will consider both the possibility that it is binding and that it is not binding.

Assuming first that the above constraint is binding means that Fannie Mae and Freddie Mac price in such a way that  $m$  solves the above expression as an equality. That is, although they would like to limit quantity and increase profits, potential competition from private-label conduits constrains them from doing so. Let  $m^c$  be the quantity that solves the above constraint as an equality. Note, therefore, that  $m^c$  equals  $m^e$ , the equilibrium value of the competitive market (see Figure 20). It follows, therefore, that total welfare is the same in this situation as in the competitive market. Moreover, the demander and supplier surpluses will also be the same. The only difference is that Fannie Mae and Freddie Mac are making a profit:

$$\pi = [p_D(m^c) - p_S(m^c) + P - c] \cdot m^c = P \cdot m^c.$$

Note that their collective profit is due solely to the premium from their federal guarantee.<sup>109</sup>

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<sup>108</sup> Of course Fannie Mae and Freddie Mac could allow entry into the conforming conduit market, but this would not be profit-maximizing for them.

<sup>109</sup> If we allowed Fannie Mae and Freddie Mac to have a cost advantage, then part of their profit would stem from this as well—see Section 2.8.

This profit is not free (otherwise welfare would actually be greater in this situation) but is paid for by the federal guarantee. As Kane and Foster (1986) remind us, this federal guarantee is not free—it is a liability that is assumed by the federal government. Indeed, because this federal guarantee is a claim against taxpayers and federal taxation is distortionary and, hence, welfare reducing (see, e.g., Chapters 2 and 3 of Atkinson and Stiglitz (1980)), an analysis that fully accounted for the cost of the federal guarantee (i.e., a full general-equilibrium welfare analysis) would show that welfare in this situation is reduced vis-à-vis the true competitive situation because of the implicit increase in distortionary taxation. Moreover, since  $P \cdot m^c$  is a *rectangle and not a triangle* (like monopoly deadweight loss), the general-equilibrium welfare consequences need not be negligible. For instance, Kane and Foster (1986) report estimates as high as \$4.2 billion for the *annual* cost of Fannie Mae's guarantees; multiplying that by 5% to 30% (the range of estimates of taxation's distortionary cost)<sup>110</sup> yields an annual welfare cost of between \$210 million and \$1.26 billion.

From the perspective of policymakers, eliminating the federal guarantee would, in this case, affect only Fannie Mae and Freddie Mac (and, thereby, their shareholders and bondholders). Because, as we have noted, demander and supplier surplus are unaffected, these two groups could not be expected to object to this policy change. In particular, there should be a negligible impact on mortgage rates.

Now, suppose that the constraint is not binding. This means that

$$[p_D(m^c) - p_S(m^c) - c] \cdot m^c < 0;$$

which, in turn, means that  $m^c > m^e$ —in other words, *more* than the competitive amount of mortgages are traded.<sup>111</sup> This situation is illustrated in Figure 22. One consequence of this is that the premium paid by demanders is less than it would be given competition; i.e.,  $p_D(m^c) < p_D(m^e)$ . Because, as we argued previously, a portion of any price decrease is likely to be passed on to homeowners, this means that homeowners pay lower rates than they would given competition. So the surplus of demanders and, thus, ultimately homeowners is greater than it would be given competition. Similarly, the premium received by investors is also greater than it would be under competition; i.e.,  $p_S(m^c) > p_S(m^e)$ . Consequently, their surplus would be greater than it would be under competition.

The increased surplus enjoyed by the demanders and suppliers is financed by the federal guarantee: Since  $p_D(m^c) < p_D(m^e)$  and  $p_S(m^c) > p_S(m^e)$ , it follows that Fannie Mae and Freddie Mac are not fully capturing the guarantee; that is, their profits are

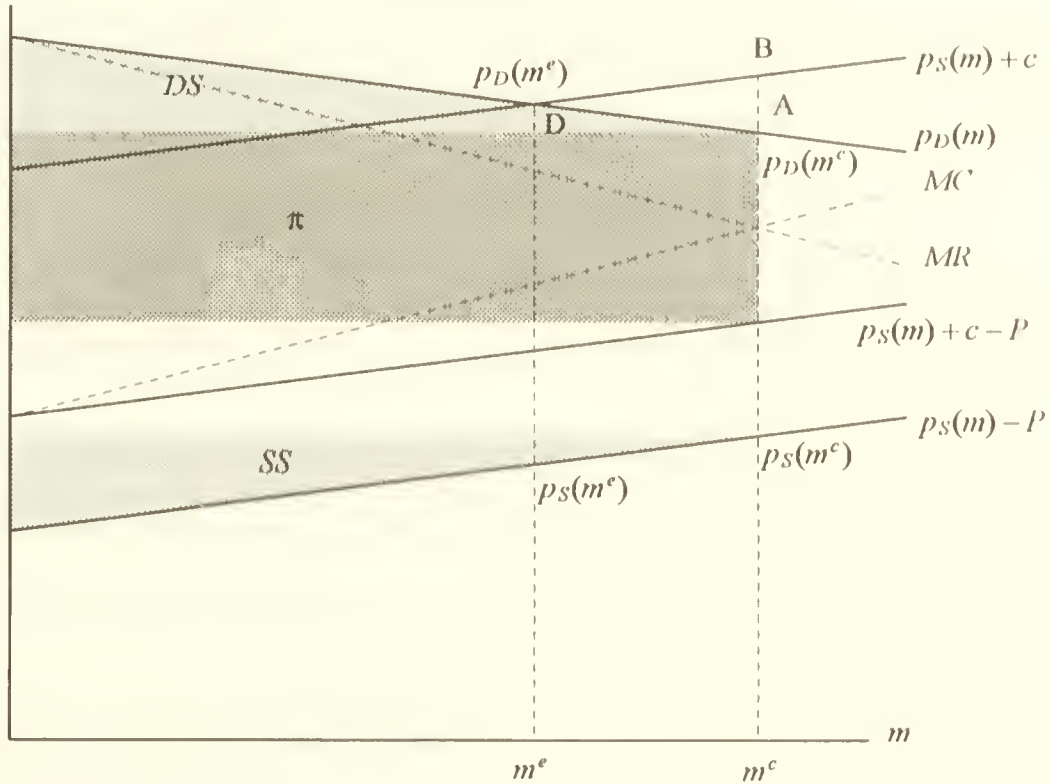
$$\pi = [p_D(m^c) - p_S(m^c) + P - c] \cdot m^c < [p_D(m^e) - p_S(m^e) + P - c] \cdot m^e = P \cdot m^e,$$

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<sup>110</sup> Professors Alan Auerbach and Aaron Edlin, experts on public finance, private communication.

<sup>111</sup> It is readily shown that as  $P$  increases, the value of  $m$  that solves the monopoly problem of maximizing  $[p_D(m) - p_S(m) + P - c] \cdot m$  also increases. Consequently  $m^c > m^M$ , where  $m^M$  is the solution from Section 5.2.3. Since the expression  $[p_D(m) - p_S(m) - c] \cdot m$  is strictly decreasing in  $m$  for  $m > m^M$  and since  $m^c > m^M$ , it follows, therefore, that  $m^c > m^e$ .

FIGURE 22



so some of the guarantee must therefore be going to the demanders and suppliers. Fannie Mae and Freddie Mac are willing to pass some of this guarantee on to the demanders and suppliers in exchange for the benefit of trading more mortgages. This passthrough could explain the 20- to 50-point difference between jumbo mortgage rates and conforming mortgage rates.

Because more than the welfare-maximizing quantity is being traded, there must be a welfare loss (i.e., a deadweight triangle).<sup>112</sup> That is, a partial-equilibrium analysis reveals a welfare loss (this loss is financed by the federal guarantee). Of course, because the guarantee is ultimately being financed by taxpayers, there is also a general-equilibrium welfare loss. For policymakers, eliminating the guarantee ultimately means making losers of demanders (and, thus, homeowners), suppliers, and Fannie Mae and Freddie Mac, while making winners of taxpayers.

<sup>112</sup> This is the triangle  $ADB$ .



### 5.3. Fannie Mae and Freddie Mac Are Privatized As Is

We consider first what might happen if Fannie Mae and Freddie Mac are privatized as is; that is, they remain large, but their GSE status is removed, their activities are deregulated, and the implicit federal guarantee is lifted. As earlier discussion has made clear, what happens then depends in large part on whether Fannie Mae and Freddie Mac enjoy significant economies of scale.

#### *(1) Fannie Mae and Freddie Mac Enjoy Significant Economies of Scale*

As discussed in Sections 2.3 and 3.1, significant economies of scale (a high MES) can serve as a natural barrier to entry. If Fannie Mae and Freddie Mac enjoy these economies of scale, then they may be able to block entry into the conforming market. They may even be able to duopolize the jumbo market.

Assume for the moment that Fannie Mae and Freddie Mac do not erect strategic barriers to entry (we take up that issue in Section 5.3.3). Then, given a high MES, the ultimate industry structure will consist of a small number of large firms (possibly two). The reason is that (i) any firm that is not large enough will be at too great a cost disadvantage to compete in the long run with the large firms; and (ii) dividing a finite market up among large firms means fewer firms than if the market were divided among small firms.

To the extent this small number of firms is small enough to facilitate tacit collusion, the equilibrium analysis will be similar to that in Section 5.2.3 if hit-and-run entry is not possible; otherwise it will be similar to that in Section 5.2.4 (except the conduits' profits will stem from their cost advantage rather than the now-removed federal guarantee). In terms of welfare, there will likely be a deadweight loss vis-à-vis the competitive situation. This loss, however, is likely to be small, at least if the experience of other industries is a guide (see our discussions of Harberger (1954) above). Moreover, this comparison between a tacitly colluding oligopoly and competition is somewhat misleading: To create competition in this setting, more firms would have to enter the market. Were this to occur, then some of the cost savings realized by exploiting economies of scale would necessarily be lost. In other words, if the industry does end up as a small oligopoly of large firms because of high MES, the welfare loss due to greater concentration will be offset to a large degree by the welfare gain from the exploitation of economies of scale. Indeed, Farrell (1995) argues that, from a theoretical perspective, this welfare gain would likely be greater than this welfare loss.

If, despite their small number, the competitors in the post-privatization market cannot tacitly collude, then the situation will resemble today's jumbo market. Since the equilibrium will be (at least approximately) the competitive equilibrium, there will be no welfare loss (see, e.g., Section 5.2.2). Moreover, since economies of scale will presumably be extended to what is now the jumbo market, there could even be a welfare gain from this new industry structure. That is, the artificial division of the conventional market into conforming and jumbo could mean that one segment, the jumbo segment, has been created that is now too small to enjoy economies of scale. Extending economies of scale to this segment would therefore increase welfare.



It should also be remembered that the elimination of the federal guarantee offers yet another welfare gain, as discussed in Section 5.2.

In summary, if high MES leads to a small oligopoly (including a Fannie Mae and Freddie Mac duopoly), there could be welfare losses. On the other hand, the exploitation of economies of scale is welfare improving. The elimination of the federal guarantee is also welfare improving. The net effect is therefore difficult to predict even if greater concentration leads to tacit collusion.

### *(2) Fannie Mae and Freddie Mac Do Not Enjoy Significant Economies of Scale*

Absent economies of scale and strategic entry barriers, Fannie Mae and Freddie Mac will be in a market that will greatly resemble today's jumbo market. By analogy, then, we can expect this market to be quite competitive. This will be true regardless of the size distribution; that is, Fannie Mae and Freddie Mac may actually remain significantly larger than their competitors, but they will still be in a competitive market. The welfare analysis will resemble that in Section 5.2.2. Since the welfare in Section 5.2.2 exceeds the welfare in the current market (i.e., in Section 5.2.4), this entails a welfare improvement over the current market structure.

### *(3) Can Fannie Mae and Freddie Mac Erect Strategic Entry Barriers?*

A necessary condition for Fannie Mae and Freddie Mac to be able to erect strategic entry barriers is that they have market power. Empirically, this means that they must be large vis-à-vis potential entrants. In other words, the question of whether they can erect strategic barriers arises only if they are privatized as is.

There are two types of strategic entry barriers that Fannie Mae and Freddie Mac could conceivably erect in this market:<sup>113</sup>

- (1) They could attempt to lock up suppliers via merger or long-term contract.
- (2) They could seek to develop a reputation for toughness.

Fannie Mae's and Freddie Mac's current profits arise because other conduits are effectively barred from the conforming market. Were Fannie Mae and Freddie Mac to restrict the suppliers of conforming mortgages to sell only to them, then other conduits would again be barred from the conforming market. Nothing would change (except the GSEs' profits would be less because the federal guarantee had been removed). Fannie Mae and Freddie Mac could restrict or lock up their suppliers either by buying their suppliers or inducing their suppliers to sign long-term exclusive-dealing contracts. There are a number of reasons, however, to believe that this strategy would not be successful.

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<sup>113</sup> For a more complete discussion of strategic entry barriers, including a "full list," see Gilbert (1989) or Chapter 4 of Oster (1994).

- Many of their largest current suppliers are vertically integrated with other conduits; they therefore could not be locked up. Consequently, this strategy would not fully prevent entry.
- Potential entrants would likely compete with Fannie Mae and Freddie Mac in a race to lock up suppliers, leaving Fannie Mae and Freddie Mac with only a partial barrier.
- By entering into long-term contracts that help Fannie Mae and Freddie Mac deter entry, suppliers risk becoming hostage to Fannie Mae and Freddie Mac at a later date when they are the only game in town. This will cause suppliers either not to sign these contracts or to extract a significant amount of Fannie Mae's and Freddie Mac's surplus while their bargaining position is good. Hence, the strategy will either fail or be exceedingly expensive.
- Buying up too many suppliers will greatly increase the level of concentration in the origination market, which would likely trigger antitrust action that would block this strategy.
- Unless carefully structured, exclusive-dealing contracts are often seen as being anticompetitive and thus being in violation of antitrust law (see Chapter VI–E of Posner and Easterbrook 1981). Consequently, there is a risk that antitrust action would block this strategy.

Because the strategy is unlikely to be successful, we doubt that it would be tried.

The second strategy, developing a tough reputation, means competing fiercely against any entrant (i.e., engaging in a price war) so that future potential entrants are scared off. After a few entrants had been driven out, Fannie Mae and Freddie Mac would have developed a reputation for toughness and, hence, would not be bothered by future entry. We doubt that this strategy would be successful either. For the strategy to work, entrants must be vulnerable for a period after they enter (e.g., they must be building customer loyalty or developing a reputation for high-quality goods). In particular, they must be small and growing. We saw in the jumbo market, however, that entrants can come in at a rather large scale. Furthermore, as previously noted, there is unlikely to be any customer loyalty among sophisticated security buyers. Finally, investors appear to rely on rating agencies, so developing a quality reputation is not particularly important. In short, entrants are not particularly vulnerable. Consequently, it would be very expensive to drive them out. Indeed, the size of Fannie Mae and Freddie Mac serves as a disadvantage for this strategy: Cutting prices<sup>114</sup> when you are large represents a tremendous loss. In essence, Fannie Mae and Freddie Mac would in effect be using an elephant gun to hunt flies.

In summary, we are doubtful that Fannie Mae and Freddie Mac can succeed in deterring entry by erecting strategic barriers to entry.

#### **(4) Conclusion**

If Fannie Mae and Freddie Mac are privatized as is *and* if there are significant economies of scale, then the resulting market will be highly concentrated. Given, however, (i) the high *current*

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<sup>114</sup> Either lowering the price charged to security buyers or raising the price paid for mortgages.

market concentration, (ii) the elimination of the welfare-reducing federal guarantee, and (iii) the extension of economies of scale to the jumbo market, welfare in the post-privatization market could well be greater than it is now.

If Fannie Mae and Freddie Mac are privatized as is *and* there are no significant economies of scale, then the resulting market will be fairly competitive. In light of points (i)–(iii), welfare would definitely be greater after privatization in this case.

These conclusions stem in part from our belief that Fannie Mae and Freddie Mac will not be able to erect effective strategic barriers to entry.

#### **5.4. Fannie Mae and Freddie Mac Are Shrunk Prior to Privatization**

In this section we consider the second privatization option: Shrink Fannie Mae and Freddie Mac prior to privatization; that is, make sure that they are small when privatized, their GSE status is removed, their activities are deregulated, and the implicit federal guarantee is lifted. As in Section 5.3 what happens then depends in large part on whether there are significant economies of scale in this industry.

##### ***(1) There Are No Significant Economies of Scale***

If there are no significant economies of scale, then the post-privatization market will greatly resemble today's jumbo market. By analogy, then, we can expect this market to be quite competitive. This will be true regardless of the ultimate size distribution; that is, some competitors may become larger than their competitors, but they will still be in a competitive market. The welfare analysis will resemble that in Section 5.2.2. Since the welfare in Section 5.2.2 exceeds the welfare in the current market (i.e., in Section 5.2.4), this entails a welfare improvement over the current market structure.

##### ***(2) There Are Significant Economies of Scale***

If there are significant economies of scale, they should eventually be realized. As we discussed in 5.3.1, this could lead to market concentration and, correspondingly, some deadweight loss. Of course, because this situation replaces one of considerable market power—one with the welfare-reducing federal guarantees, and one in which the economies of scale are not realized in the jumbo market—welfare could well be greater after privatization.

The one difference between the situation here and the one considered in Section 5.3.1 is that there will be dynamic welfare effects. By shrinking Fannie Mae and Freddie Mac, the post-privatization market begins as a competitive market; thus, along its path to its more concentrated future, that component of welfare due to the competitive nature of the market will be greater than if the concentrated market arose immediately following privatization. On the other hand, by eliminating the GSEs' economies of scale, costs will be greater on this path than they will be in the long run. Consequently, that component of welfare due to economies of scale will be less than if the



concentrated market arose immediately following privatization. It is impossible to say *ex ante* which dynamic effect will be the larger.

### **(3) Conclusion**

If Fannie Mae and Freddie Mac are shut or shrunk prior to privatization *and* if there are significant economies of scale, then the resulting market will still ultimately be highly concentrated. Given, however, (i) high *current* market concentration, (ii) the elimination of the welfare-reducing federal guarantee, and (iii) the extension of economies of scale to the jumbo market, welfare in this long-run equilibrium of the post-privatization market could well be greater than it is now. As the market moves toward this long-run equilibrium, there will also be dynamic welfare effects: There is a benefit to having the market start as a competitive one, but there is also a cost because economies of scale are not being exploited.

If Fannie Mae and Freddie Mac are shrunk prior to privatization *and* there are no significant economies of scale, then the resulting market will be fairly competitive. In light of points (i)–(iii), welfare would definitely be greater following privatization in this case.

## **5.5. Additional Welfare Issues**

The removal of government guarantees from Fannie Mae and Freddie Mac could cause these firms to reduce their output in the conforming conduit market. This raises the possibility that other forms of mortgage origination and securitization could increase. Furthermore, these increases could use other forms of government guarantees, such as FHA/VA mortgage insurance or federal deposit insurance, thus offsetting the government's savings from eliminating the Fannie Mae and Freddie Mac guarantees. We do not consider this line of argument relevant or important for two reasons:

- (1) Fannie Mae's and Freddie Mac's production would decline following privatization only if their output had previously exceeded the competitive equilibrium output level. Thus, there is no reason to expect other market participants, operating in competitive markets, to have incentives to increase their output levels to make up for the Fannie Mae and Freddie Mac reductions.
- (2) Other forms of government subsidies to the mortgage market should also be evaluated as to their public policy benefits. We suspect this will be more likely to happen, and the conclusions will be more transparent, with Fannie Mae and Freddie Mac already privatized. To be clear, although we expect that some of these other forms of subsidies will also be removed, many others are likely to remain. The key point is that each would be evaluated on the basis of its impact on the mortgage market and other parts of the financial system.

The economic justification for government intervention in markets is that government can sometimes overcome market imperfections. If government intervention in the secondary mortgage markets, in the form of establishing Fannie Mae and Freddie Mac, was economically justified, we must ask before ending this intervention what has changed to make this intervention no longer necessary. We consider this issue here.



Two possible market failures could have warranted government intervention:<sup>115</sup>

- (1) Overcoming “thin” markets (i.e., network externalities).
- (2) Overcoming asymmetries of information concerning risk.

Failure (1) refers to the idea that if the market for MBSs is thin, then they are less liquid. Consequently, investors will be more reluctant to hold them. Indeed, the premium they might require in that case could be so great that the market fails to exist.<sup>116</sup> Moreover, it might be difficult for private firms to come into the market in a large enough scale to offset this problem. The government, by coming in at a large scale—and, possibly, by offering an additional inducement in the form of the federal guarantee—could overcome this market imperfection.

Given how well established the secondary market has become, in particular given the growth of the fully private jumbo market, we strongly doubt that this first market failure is a danger if the conforming market were similarly privatized. Undoubtedly, without the federal guarantee, some investors would switch to other assets, but the resulting reduction in liquidity should not cause the market to collapse.<sup>117</sup>

Failure (2) refers to the idea that if investors cannot easily observe the quality (i.e., risk and return) of the assets offered to them, then they will heavily discount them. Consequently, the market may fail to exist.<sup>118</sup> By guaranteeing these securities, the government may overcome this problem, thereby allowing the market to flourish.

The success and growth of the fully private jumbo market, as well as emerging markets for the securitization of other debt instruments, shows that this second potential market failure is not (is no longer) a problem. The rating agencies (e.g., Standard and Poor’s or Moody’s) serve to eliminate much of the asymmetry of information, thereby allowing these markets to function. There is no reason to suspect that the rating agencies could not do the same for conforming mortgages.

One of the statutory purposes of Fannie Mae and Freddie Mac is to promote stability in the primary mortgage market. Although volatility in mortgage rates is not, per se, a market failure,

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<sup>115</sup> A third failure could exist with respect to the provision of mortgage credit to “underserved” borrowers. An analysis of this potential failure is beyond the scope of this report.

<sup>116</sup> In terms of earlier model, the problem could be expressed as follows. Let  $p_s(m;L)$  be the premium required by investors as a function of the amount securities offered,  $m$ , and the liquidity of the market,  $L$ . The problem is, then, that low liquidity (e.g.,  $L = 0$ ) could mean that  $p_s(m;0) + c(m) > p_D(m)$  for all  $m$ .

<sup>117</sup> Indeed, from a general-equilibrium perspective these investors should be switched; there is ultimately no welfare gain if they hold mortgage-backed securities solely because of the federal guarantee. That is, these “guaranteed” mortgage-backed securities are likely crowding out, to one degree or another, other securities. Ironically, the securities most likely affected by this crowding out are the closest substitutes for the guaranteed mortgage-backed securities in terms of risk, namely Treasury securities.

<sup>118</sup> This is known in the literature as the “lemons” problem. See Akerlof (1970).

market volatility can affect various participants in the market. In particular, it can make planning difficult, which could adversely affect potential homeowners and, to an extent, those that lend to them. There is no evidence (that we are aware of) that Fannie Mae and Freddie Mac have reduced market volatility. One way they could reduce volatility would be to price in a countercyclical manner, but Goodman and Passmore (1992) find evidence that they price in a procyclical manner. As we noted previously, however, this evidence is far from conclusive. Moreover, a monopoly (or, equivalently, a tacitly colluding duopoly) absorbs some of the cost shock vis-à-vis a perfectly competitive market.<sup>119</sup> A reduction in Fannie Mae and Freddie Mac's market power could, therefore, lead to greater volatility in mortgage rates. This effect is, however, greatly mitigated if Fannie Mae and Freddie Mac's pricing is constrained by the pricing in the competitive jumbo market (see Section 5.2.4). Putting these points together, we conclude that the impact of Fannie Mae and Freddie Mac on mortgage-rate volatility is likely to be quite small, so the increase in volatility—if any—from their privatization should be small as well. Certainly it is too small to outweigh the welfare benefits of privatization.

In summary, there is no reason to believe that the government intervention is still needed in the secondary mortgage markets. Privatization will not, therefore, generate welfare losses because it represents an end to direct government intervention.<sup>120</sup>

## 5.6. Conclusions

This part of the report considered the likely consequences of privatization. As a reference point, we carried out a welfare analysis of today's jumbo market in Section 5.2.2 and today's conforming market in Section 5.2.4. Since today's jumbo market is competitive, it is likely close to welfare maximizing (unless there are significant economies of scale that are not being exploited). An analysis of today's conforming market revealed that, from a partial-equilibrium perspective, it could also be welfare maximizing. It could, however, also be the case that the conforming market is inefficiently large (that is, more than the welfare-maximizing amount of mortgages are traded). In addition, from a general-equilibrium perspective, the conforming market is inefficient because it is being implicitly subsidized at the taxpayers' expense.

The ultimate market structure following privatization depends heavily on whether there are significant economies of scale in this industry. If there are, then the industry will likely become quite concentrated; that is, dominated by a few large firms. Because the conforming market is already concentrated, this aspect of privatization should not have a large impact on welfare. Moreover, privatization will also have welfare benefits: economies of scale will be extended to the jumbo market and the federal guarantee will be removed.

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<sup>119</sup> For instance, if demand is linear and the variance of marginal cost is  $\sigma^2$ , then the variance of price is  $\frac{1}{4}\sigma^2$ .

<sup>120</sup> There will, of course, still be government regulation. This, however, should remain constant between the pre- and post-privatization regimes.

If there are not significant economies of scale, then the secondary market should become fairly competitive. This would represent a welfare gain.

We do not anticipate that Fannie Mae and Freddie Mac could successfully block entry into a post-privatized market by erecting strategic barriers to entry. Nor do we anticipate that the ending of direct government intervention in the secondary mortgage markets will give rise to welfare-reducing market imperfections.

Without a crystal ball, it is impossible to predict the exact post-privatization market structure. We feel confident, however, that privatization will be, on net, welfare improving. This is not to say that it will not create winners and losers. Almost surely the American taxpayers will be winners. If there is a shake-out in the industry (a likely possibility if there are significant economies of scale), then the private labels that die will be losers, but the private labels that survive will be winners. If there is no shake-out, then the private labels will be little affected. The gains or losses conferred on the shareholders (and debtholders) of Fannie Mae and Freddie Mac will depend on the financial and other related terms of their privatization. Based on Section 5.2, investors and homeowners could be winners or losers. If the markets become more competitive, then they will either be no better off (recall one possibility is that the current allocation is welfare maximizing) or they will be worse off (recall the other possibility is that they capture part of the federal guarantee). If, however, there are large economies of scale, then investors and homeowners may benefit to the extent they capture some of the resulting cost savings.

## **PART 6: CONCLUSIONS**

As Part 1 made clear, the mortgage market in general, and the secondary mortgage market in particular, are important components of the U.S. financial system. Changes in policy that affect these markets can therefore have large and widespread effects. The change in policy that we have considered in this report is the privatization of Fannie Mae and Freddie Mac. This change will have many effects, but we have focused on the industrial-organization effects in this report.

To study privatization's possible effects on the industrial organization of the secondary markets, we began by studying the conventional mortgage market as it exists today. We did so both to gain a benchmark against which to compare possible future scenarios and to uncover clues that could help us make predictions about a post-privatization future. Our conclusions from this analysis are these:

- (1) The conforming conduit market is a tacitly colluding duopoly. This conclusion is supported by the positive economic profits being earned by Fannie Mae and Freddie Mac.
- (2) The jumbo market is a competitive market.
- (3) Entry into the conforming market is blocked by the advantages afforded Fannie Mae and Freddie Mac by their GSE status. Of particular importance is the implicit federal guarantee that they enjoy.



- (4) The jumbo market is open to entry.
- (5) Neither suppliers nor buyers have market power vis-à-vis the conduits.
- (6) The number and availability of substitute securities, as well as some empirical evidence, indicate that the demand curve for MBSs is likely to be relatively flat.
- (7) Fannie Mae's and Freddie Mac's profits are determined largely by the premium investors are willing to pay for the federal guarantee.

Given the GSEs' dominance of the conventional markets today, there is reason to suspect that they could be dominant players after privatization, at least initially. We therefore sought to identify the strengths and weaknesses that Fannie Mae and Freddie Mac would bring to a privatized market. A possible strength could be the GSEs' economies of scale—if *they exist*. Our examination of the jumbo market revealed no evidence of economies of scale, but the fact that Fannie Mae and Freddie Mac operate at an order of magnitude greater than the private-label conduits raises doubts about the applicability of this evidence. A potential weakness is Fannie Mae's and Freddie Mac's possible inefficiency because of their having lived the quiet life. Whether or not the quiet-life hypothesis actually applies to Fannie Mae and Freddie Mac is not a question that we can answer, however. We found no evidence that Fannie Mae and Freddie Mac would have capital problems in a privatized environment. In short, we found no strong evidence to believe that Fannie Mae and Freddie Mac would either dominate or be dominated by private-label conduits after privatization.

Vertical integration is a trend in secondary markets. Many of the largest private-label conduits are integrated into origination and servicing. Although the theoretical literature offers a number of motives for vertical integration, we concluded that the ones that best explained this integration were synergies, economies of scope, and reduction in transactions costs. In particular, anticompetitive (market dominance) motives are unlikely to explain this integration. We also concluded that privatization would lead Fannie Mae and Freddie Mac to integrate vertically as well. Given the size of Fannie Mae and Freddie Mac, anticompetitive motives would at first seem to be a more reasonable concern. Upon examination, though, we concluded that Fannie Mae's and Freddie Mac's vertical integration would occur for the same reasons as the private labels' and not for anticompetitive reasons. One consequence of greater vertical integration appears to be greater concentration in the relevant markets. Although this greater concentration could lead to a lessening of competition and thus a reduction in welfare, we believe that the cost savings realized by vertical integration will outweigh any reduction in welfare due to a lessening of competition.

Finally, in the previous section, we considered the possible market structures and corresponding welfare consequences of privatization. To set a welfare benchmark, we began with the conventional market as it currently exists. We concluded that from a *partial-equilibrium* perspective (i.e., one that omitted the distortionary impact of taxation or possible crowding-out effects) trade was either at the welfare-maximizing level or *exceeded* the welfare-maximizing level. There is no question, however, that from a broader *general-equilibrium* perspective, welfare is not currently being maximized.



After privatization we foresaw two possible scenarios. One, there are not significant economies of scale, so the post-privatized market will be fairly competitive, increasing welfare over its level today. Two, there are significant economies of scale, in which case we predict a more concentrated market. The resulting lack of competition will have a negative impact on welfare. Offsetting this, however, are the following gains: (i) the elimination of the negative general-equilibrium consequences of the federal guarantee and (ii) the extension of the benefits of economies of scale to the jumbo market. Moreover, it is not clear that the degree of concentration in the post-privatized market would be any worse than the degree of concentration in today's market.

We could find no evidence that continued direct government intervention in the secondary markets (i.e., *not* privatizing) was necessary to correct any market imperfections.

The effect of privatization on homeowners is uncertain. As taxpayers, they benefit from the implicit reduction in taxation (because of both the direct transfer and the distortions). If the *current* level of trade *exceeds* the welfare-maximizing level (recall this is a possibility), then the mortgage rates paid by homeowners could go up under privatization. If the current level of trade equals the welfare-maximizing level (recall this too is a possibility), then their mortgage rates would be unchanged by privatization. If there are significant economies of scale, then mortgage rates might fall—particularly for jumbo mortgages—following privatization. Finally, if privatization increases the volatility of mortgage rates, homeowners or potential homeowners could be made worse off due to the increased uncertainty.

In summary, we conclude that it is highly likely that the privatization of Fannie Mae and Freddie Mac will be welfare improving. The small possibility of a negative welfare outcome arises more as a theoretical curiosity than as a serious issue for concern. Moreover, these conclusions are consistent with what has happened in other industries and other nations.<sup>121</sup>

Two final points need, however, to be kept in mind. First, privatization and laissez-faire are not the same concepts. In particular, as Vickers and Yarrow (1988) point out, maximizing the benefits of privatization can sometimes require vigilant antitrust oversight. Although some of the possible scenarios outlined above do not require antitrust oversight, it must be remembered that some could. If Fannie Mae and Freddie Mac are privatized under a lenient antitrust regime, then the welfare benefits of privatization could be reduced, although we think it unlikely that they would turn negative.

The second point to remember is that although privatization should increase welfare, it will create some losers. In particular, if the current level of trade exceeds the welfare-maximizing level, then the mortgage rates paid by homeowners could go up under privatization. To the extent that policymakers are concerned with distributional issues, this may have an impact on how they perceive privatization.

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<sup>121</sup> See, e.g., Morrison and Winston (1986) for a discussion of the benefits of airline deregulation or Vickers and Yarrow (1988) for a discussion of the benefits of privatization in Great Britain.

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## DISCUSSION OF THE HERMALIN-JAFFEE PAPER

Herbert M. Kaufman

Messrs. Hermalin and Jaffee use economic theory primarily to analyze the current role of the GSEs and the likely impact of their privatization. As such, they do a commendable job of organizing a multitude of issues raised by prospective privatization. However, as they admit, it is difficult to definitively reach conclusions in this fashion. Rather, they can use theory to shed light on the likely existing situation and prospects, but the lack of empirical analysis—and, as they point out, data are somewhat difficult or, in some cases, impossible to obtain for many issues—precludes definitive answers to some important questions. Nevertheless, the paper is persuasive, when taken as a whole, in advancing their conclusion that privatization would be welfare enhancing.

The paper itself raises so many issues that a short discussion cannot address even a fraction of them. Furthermore, my perspective is somewhat different. The key issues as I see them are public policy and the rationale for continuing government sponsorship. My discussion will begin with these points and then move to comments related to privatization.

The GSEs and their ties to government were created with a public purpose in mind, that is, to increase the flow of credit to the mortgage sector by tapping the general credit markets for mortgage credit. That Fannie Mae and Freddie Mac have done so is unquestionable. They were probably even needed to bring full development of mortgage securitization. Market failure is one circumstance for which government intervention may be appropriate. Arguing in an infant industry context, the federal ties and implicit guarantees were probably necessary. However, the question before us is whether they are still necessary. Hermalin-Jaffee basically conclude that they are not, and I agree.

At some point in time it becomes unnecessary to supplant the private market through government guarantees. The GSEs have a very good situation currently: They borrow at subsidized rates but earn at market rates. The authors' argument and indirect evidence on economic profits are relevant here. Guarantees are potentially costly for the government, especially in case of failure. But would privatization remove this concern? This goes to the "too big to fail" (TBTF) argument.

The TBTF doctrine raised by the authors does not suggest to me the continuation of the guarantee. As the authors note, the nature of the guarantee under TBTF would likely change. Further, TBTF is being challenged even in the banking system where systemic failure is of considerably more concern. Further, even in the case of bailouts under TBTF—for example, Continental

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Illinois National Bank—stockholders were wiped out. The extent to which stockholders shoulder risk is at best uncertain in the current situation for the GSEs under my interpretation of the implicit guarantee. Thus, even if shifted to the TBTF-type guarantee, the nature of the guarantee will shift in kind, not in degree.

Additional issues need to be addressed in assessing privatization. The contingent liabilities of the GSEs are very large. The Hermalin-Jaffee analysis of capital adequacy is insufficient. Privatization would require some substantial increase in capital. Comparison with, for example, GE as a parent of a private conduit is not adequate in this case because contingent liabilities are much greater for GSEs, both in absolute terms and as a percentage of capital. Under risk-based capital standards for banks under the Basle agreements, off-balance-sheet obligations are subject to some capital standards. The same needs to be done in the case of GSE privatization. However, meeting additional capital standards for banks did not prove onerous, and I anticipate that the GSEs would be able to meet these standards as private entities with little difficulty.

Finally, I would like to address the issue of shrinkage raised by Hermalin-Jaffee. That is: Do the GSEs have to be made much smaller before privatization to allow fair competition? Such shrinkage does not seem useful or likely. There will be a period of adjustment for the market and this, indeed, may reveal whether there are economies of scale in Fannie Mae and Freddie Mac operations. I, personally, have little problem with this if there are economies of scale. The privatized GSEs will certainly be challenged by private competitors and, therefore, the economies of scale issue will be tested in the marketplace—to my mind, at little economic cost for society.

In conclusion, Hermalin-Jaffee have provided a helpful way of organizing examination of the complex number of issues that relate to privatization. Their work is certainly useful for future discussion.

# COMMENTS ON THE HERMALIN-JAFFEE PAPER

Lawrence J. White

## I. INTRODUCTION

Fannie Mae and Freddie Mac enjoy special privileges as GSEs. Their most important advantage is their congressional charter, which causes the capital markets to bestow a special “agency” status upon them, thereby reducing their funding costs.

Messrs. Hermalin and Jaffee have undertaken the ambitious task of predicting the consequences for the U.S. residential mortgage industry of a possible privatization of Fannie Mae and Freddie Mac. To do this, Hermalin-Jaffee first analyze the current consequences of the GSEs on the mortgage industry (and on each other) and then hypothesize the likely consequences of the removal of their special privileges.

In these comments<sup>1</sup> I will review the development of some of Hermalin-Jaffee’s arguments and offer suggestions for refinements and extensions.

## II. CURRENT CONSEQUENCES

Despite the subtitle of the Hermalin-Jaffee paper, “Implications for Mortgage Industry Structure,” the authors have (fortunately) interpreted their charge broadly and have investigated a wider set of consequences that extend beyond just “industry structure.”<sup>2</sup>

In essence, Hermalin-Jaffee rely on the “structure-behavior-performance” (S-B-P) model that is an important paradigm in the “industrial organization” branch of applied microeconomics.<sup>3</sup> In its

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<sup>1</sup> These comments are based specifically on the Hermalin-Jaffee March 1995 draft.

<sup>2</sup> A useful supplement to the Hermalin-Jaffee paper is Weicher (1994), which provides a comprehensive overview of the U.S. housing system’s current structure.

<sup>3</sup> Hermalin-Jaffee (H-J) refer to the Porter (1980) “five forces” model, as explicated by Oster (1994), but their analysis actually encompasses the full S-B-P approach. For modern explications of the S-B-P model, see Scherer and Ross (1990) and Carlton and Perloff (1994).

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simplest form, this model predicts that the structural characteristics<sup>4</sup> of an industry will strongly influence that industry's behavior,<sup>5</sup> and structure and behavior together will influence performance.<sup>6</sup> This model has been the subject of extensive elaboration, empirical testing, and criticism.<sup>7</sup> Despite the criticism, the model remains a serviceable and intuitive means for analyzing and understanding an industry and the consequences of change for that industry.<sup>8</sup>

## A. The Market

To apply the S-B-P model, the analyst must delineate a market or set of markets. Hermalin-Jaffee choose to focus largely on the secondary mortgage market—that is, the market for MBS—and more specifically on the MBS derived from “conventional-conforming” mortgages.<sup>9</sup> In this approach, the GSEs' production activities can be seen as buying residential mortgages, packaging them, covering them with a guarantee as to timely payment of interest and principal, and selling (issuing) the securities that represent claims on the streams of interest and principal payments that attach to the mortgage packages. Though Hermalin-Jaffee devote some attention to the GSEs' input markets and to the suppliers in those markets, their primary focus is on the GSEs' (securities) output markets. Unfortunately, this means that Hermalin-Jaffee largely neglect the (input) supply and pricing of the residential mortgages themselves—a point to which I will return below.

## B. Structural Characteristics

Hermalin-Jaffee examine the major structural characteristics of the conventional residential MBS market—and more specifically the conventional-conforming residential MBS market. They conclude that, although the structural indicators are somewhat mixed, the preponderance of evidence—especially the facts that Fannie Mae and Freddie Mac are the only two GSEs in the market and their special privileges are protected by legislation—points to the likelihood of “tacit collusion.” By “tacit collusion” the authors explicitly do *not* mean any kind of nefarious, “smoke-filled room” explicit agreement between the GSEs. Instead, they use the phrase to convey the notion

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<sup>4</sup> For example, the number of sellers and their relative sizes (market shares); conditions of entry and exit; the relative ease of expansion by smaller sellers; the cost structure of the sellers; the nature of the buying side of the market; the nature (technological and promotional) of the product itself; the extent of vertical integration (forward or backward); the extent of product diversification (conglomeration); and the nature of input markets.

<sup>5</sup> For example, pricing behavior, product behavior, innovation, and changes in market shares.

<sup>6</sup> For example, rates of return, rents due to the exercise of market power, assessments of production efficiency, assessments of rates of innovation and technological change, and assessments of potential or actual significant market failures.

<sup>7</sup> See, for example, the surveys in Schmalensee and Willig (1989a, 1989b), and see Scherer and Ross (1990) and Carlton and Perloff (1994).

<sup>8</sup> Indeed, the simple monopoly-competition comparison that is a staple of every “Microeconomics 101” course is just an application of the S-B-P model at its extremes.

<sup>9</sup> H-J thus exclude the securitization of “nonconventional” mortgages that are insured by FHA or VA and securitized by Ginnie Mae, and they exclude the securitization of “nonconforming” mortgages that either are (“jumbos”) above the Fannie Mae and Freddie Mac ceiling of \$203,150 (as of 1995) or otherwise do not conform to GSE standards.



of the implicit recognition by the GSEs separately that something less than all-out competitive behavior can jointly benefit both of them.

One structural feature of the MBS market that the authors neglect is the structure of the buying side of the market. If buyers are many and sales occur in continuous “drips and drabs,” oligopolistic sellers may find tacit collusion to be easier to maintain than if buyers are few (and knowledgeable and shop around) and sales occur in discrete and relatively large (and tempting) “chunks.”<sup>10</sup> To the extent that the GSEs’ MBS sales occur in the former fashion, this structural feature supports Hermalin-Jaffee’s conclusion.

### C. Behavior

The next component of the S-B-P paradigm is “behavior.” Unfortunately, Hermalin-Jaffee tell us little directly about behavior, other than mentioning that the nature of the market is such that advertising and promotion are not important components of the GSEs’ behavior.<sup>11</sup> (And of course, they infer that tacit collusion is occurring.) I wish that Hermalin-Jaffee had told us more about behavior.<sup>12</sup>

### D. Performance

Next is “performance.” The authors highlight the GSEs’ recent annual accounting rates of return (profits) as a percentage of owners’ equity. These rates of return—averaging 27.7% and 24.7% for Fannie Mae and Freddie Mac, respectively, over the 1987–93 period<sup>13</sup>—are comparatively high and are unlikely to be attributable to high risks. Though accounting rates of return need not always be indicative of true economic profits, the high rates of return are reinforced by high ratios of market value of equity to book value of equity (2.54 and 2.63 for Fannie Mae and Freddie Mac, respectively, in 1994), and accounting biases or anomalies are unlikely to be major factors.<sup>14</sup> And for Fannie Mae, the (Tobin’s *q*) ratio of market value of assets to their estimated replacement costs has been substantially above 1.0—another supporting factor. (Hermalin-Jaffee do not tell us much about product performance or innovation performance; again, I wish that they had.)

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<sup>10</sup> The automobile industry provides a vivid real-world example of the stark differences between the “drips and drabs” buyer structure (the normal retail market) and the “chunks” buyer structure (the fleet sales market). See White (1975).

<sup>11</sup> Advertising and promotion by the GSEs are not absent, of course, as any reader of *The American Banker* and *National Mortgage News* can attest.

<sup>12</sup> For example, how does each GSE react to pricing and product initiatives by the other? Could either be described as trying to signal the other?

<sup>13</sup> It should be noted that Fannie Mae has generally been more highly leveraged than Freddie Mac. In 1993, for example, Fannie Mae had a net-worth-to-assets ratio of 3.7%, while Freddie Mac’s ratio was 5.3%.

<sup>14</sup> Also, it seems unlikely that these high rates of return represent just normal returns on GSE investments in brand name equity (which would not appear as an asset on their balance sheets), because advertising and promotion are relatively unimportant.

The authors argue that these performance results provide strong supporting evidence, which reinforces the structural indicators, that the GSEs are tacitly colluding. In essence, their complete argument would run as follows: Fannie Mae's and Freddie Mac's GSE status provides them with special cost-reduction advantages with respect to the production and sale of conventional-conforming MBS. If Fannie Mae and Freddie Mac were behaving wholly competitively, these special cost advantages should be competed away—through lower prices for outputs (MBS) and/or higher prices for inputs (primarily, mortgages)—such that Fannie Mae and Freddie Mac would be earning only normal profits.<sup>15</sup> Instead, each earns high rates of return (and each has high market-to-book ratios, among other consequences), indicating that they are not completely competing away their special cost advantages. Because the structural conditions of the conventional-conforming MBS market—especially the fact that there are only two specially placed (i.e., GSE) sellers—are largely conducive to something less than completely competitive behavior, this combination of high profits and fewness of sellers argues strongly that tacit collusion is occurring.<sup>16</sup>

I believe that this conclusion is likely to be correct. Still, there is another possible explanation for the GSEs' high rates of return and market-to-book ratios, which would be consistent with completely competitive behavior by Fannie Mae and Freddie Mac and would not involve or require any tacit collusion: Suppose that the GSEs' marginal costs of production were not constant over all ranges of production but instead were rising over some range of observed production levels<sup>17</sup>—that is, they experience *diseconomies* of scale at those production levels, perhaps because of difficulties of managing these enterprises at higher production volumes. In this case, each firm could be behaving in a completely competitive fashion (i.e., ignoring any possible reactions by its rival and myopically assuming that by lowering price slightly it could capture the entire market), but the market equilibrium price would yield rents to both firms, which would appear as high accounting profits. In essence, both GSEs would be earning scarcity rents that would be due to the fact that they are the only two firms that have these specific GSE privileges *and* they have rising marginal production costs.

Unfortunately, without more information we cannot really be sure which set of characterizations—both of which are consistent with the GSEs' rates of return—is a better description of their behavior.

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<sup>15</sup> As I note below, this argument importantly assumes that the GSEs' marginal costs of production are constant and do not rise with their volumes of production.

<sup>16</sup> There are limits to the GSEs' exercise of market power, however. Because private sector firms are free to enter and securitize conventional-conforming mortgages, Fannie Mae's and Freddie Mac's profit margins could not exceed their special GSE cost advantages (unless they enjoy additional advantages, such as economies of scale that are not immediately available to private sector entrants); otherwise, competitive entry would occur, causing profit margins to shrink.

<sup>17</sup> In the language of the geometry of microeconomics, there would be "rising marginal cost curves."

## E. Input Markets

With respect to the input side of Fannie Mae and Freddie Mac's markets, Hermalin-Jaffee explore the market structure of the GSEs' input providers, concluding that these market structures are competitive—which, I believe, is a correct conclusion. But Hermalin-Jaffee fail to “look through” to the residential mortgage market itself. I wish that they had.

The received wisdom is that the presence of Fannie Mae and Freddie Mac in the residential mortgage market has caused interest rates for conventional-conforming mortgages to be 25 to 35 basis points lower than would be true if Fannie Mae and Freddie Mac were absent. So, they appear to be having *some* effect—that is, even if they are engaging in tacit collusion, they are nevertheless causing one important set of prices to be different than would otherwise be the case.

Now, do those 25 to 35 basis points represent a complete passthrough of the GSEs' special cost advantages? Probably not. Again, GSE profit margins indicate otherwise. Also, some credit market data may be able to shed further light on this subject. Fannie Mae's long-term corporate debt trades at interest rates that are about 55 to 60 basis points lower (as of early 1995) than its single-A rating would otherwise warrant.<sup>18</sup> Further, the GSEs' MBS have traded at interest rates that are 45 to 60 basis points below those of private-label issuers.<sup>19</sup> At least part of this latter differential is surely due to the greater liquidity of the GSEs' MBS; and a smaller differential on MBS than on GSE corporate debt would be expected, because much of the credit strength of MBS lies in the underlying residential mortgages themselves, with the conduit providing an additional or overriding guarantee. But Fannie Mae and Freddie Mac enjoy other cost-reducing advantages: for example, exemption from state and local taxation, exemption from Securities and Exchange Commission filing requirements, the absence of a need for pool insurance, and the absence of a need to have their securities rated. Thus, some—but probably not all—of their special GSE cost advantages are being passed through to residential mortgage holders. (But, again, any finding of less than complete pass-through could be due either to tacit collusion or to fully competitive behavior with rising marginal production costs.) Again, I wish that Hermalin-Jaffee had explored this area more thoroughly.

Finally, when Hermalin-Jaffee assess GSE performance in social welfare terms, they uncover a deep irony: Because Hermalin-Jaffee consider the implicit GSE subsidy that attaches to Fannie Mae and Freddie Mac to be potentially distorting and welfare reducing, they conclude that any GSE exercise of market power *reduces* the extent of distortion; conversely, if the GSEs were to behave more competitively, they would pass through more of the subsidy to one or more of the markets in which they function, and they would thereby generate more distortion and social loss.

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<sup>18</sup> This differential is composed of a 25- to 30-basis-point spread between A and AAA corporate securities and another 30-basis-point spread between AAA corporates and GSE debt. (These data can be found in the monthly *Federal Reserve Bulletin* and the daily financial listings of the *New York Times* and *Wall Street Journal*.)

<sup>19</sup> See Goodman and Passmore (1992).



### III. THE CONSEQUENCES OF PRIVATIZATION

Hermalin-Jaffee's assessment of the MBS market's structure, behavior, and performance is preliminary to their major goal: to assess the consequences of privatization of Fannie Mae and Freddie Mac—that is, the removal of their GSE status.

Hermalin-Jaffee's conclusions in this respect are straightforward: There would be few or no consequences for the competitiveness and efficiency of the MBS markets.

I heartily agree with these conclusions. Ease of entry into virtually all aspects of the mortgage business should keep competition alive and well and should serve as an effective check on any potential exercise of market power.

Still, there may be some consequences of the GSEs' privatization for the *structure* of mortgage markets, at which Hermalin-Jaffee hint earlier in their paper but to which they do not return in their assessment. Though removal of their GSE status would eliminate their special cost advantages, it would also remove the legal barriers that currently confine the GSEs to securitizing conventional-conforming residential mortgages. Fannie Mae and Freddie Mac would surely extend their operations into securitizing jumbo residential mortgages (i.e., those above the current \$203,150 ceiling on conventional-conforming mortgages), and they might enter the commercial real estate MBS market as well. They might integrate vertically—backward and/or forward.<sup>20</sup> Private-sector firms that currently operate in these “neighboring” market segments would surely dislike the prospects of added competition from these privatized “behemoths” and could well utter cries of “unfair competition,” “predation,” and/or “monopolization.” But, again, the reality of ease of entry into these market segments would be an effective check on the true exercise of market power; such plaintive wails by fearful competitors ought not to sway public policy.

The GSEs' privatization and concomitant loss of the implicit GSE subsidy would have adverse consequences for *somebody* (e.g., homebuyers, MBS buyers, or GSE stockholders). But U.S. taxpayers would be relieved of the implicit contingent liability that goes with GSE status. Hermalin-Jaffee argue that the net consequences would be an improvement in social welfare—because distortions in mortgage markets would be reduced, as would the distortion caused by potential future taxation that is necessary to cover the contingent liabilities.

Again, I believe that this is a correct conclusion.<sup>21</sup> But there is a housing-related market failure problem that I wish Hermalin-Jaffee had addressed: the agent-principal problem between tenants (renters) and landlords, which causes rental property to be maintained more poorly than is

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<sup>20</sup> They would be less likely to open an auto dealership or a chain of beauty salons or to operate a paint factory. But some efforts at conglomeration cannot be completely ruled out.

<sup>21</sup> It might be argued that Fannie Mae's and Freddie Mac's special GSE status and cost advantages were an important ingredient in their initial development of the MBS market in the late 1970s and early 1980s. But that era has long since passed, and current social welfare appraisals should be based on current and prospective distortions and market failures.



true for owner-occupied properties.<sup>22</sup> If this agent-principal problem is combined with neighborhood externalities problems (i.e., the deterioration of one person's property has negative consequences for neighboring properties), then one can see the "in principle" argument for some form of (modest) social subsidy for encouraging higher levels of homeownership. I believe that the implicit subsidy that envelopes the GSEs' operations is *not* an efficient way of encouraging homeownership at the margin—because the conforming loan limit is so high (\$203,150) that the subsidy mostly encourages homebuyers, *who would otherwise buy anyway*, simply to buy bigger and more expensive homes (or second homes), while having only a small quantitative impact on first-time and/or low-income buyers who would otherwise be renters. Instead, this market failure would be better addressed by programs that focused primarily or entirely on first-time and/or low-income buyers and/or that reduced the costs of *supply* of owner-occupied housing.<sup>23</sup> Still, the encouraging-homeownership argument needs to be addressed—and dismissed—before one can conclude that GSE privatization would improve social welfare. I wish that Hermalin-Jaffee had done so.

Finally, there is at least one other argument that should be raised; it falls into the category of "second best." The United States has for sixty years expressed a clear public policy preference for encouraging housing and homeownership. This preference has manifested itself in multiple ways: for example, federal income tax deductions for residential mortgage interest and property taxes; FHA-administered programs and subsidies; the special GSE advantages for Fannie Mae and Freddie Mac; and the encouragement of and subsidization of specialized portfolio lenders for housing—savings and loan institutions and savings banks—through risk-insensitive deposit insurance and the creation of yet another GSE, the Federal Home Loan Bank System. The Fannie Mae-Freddie Mac securitization route for encouraging homeownership is clearly competitive with the portfolio lender route.<sup>24</sup> Given the policy preference for housing, it is an interesting question to ask, which route best furthers this goal while creating the least costs and risks for the public fisc? Thus far, because of mismanaged deregulation in the early 1980s, the specialized portfolio lender route has generated substantial public costs, through the honoring of federal deposit insurance obligations to the depositors in insolvent institutions.<sup>25</sup> Improved regulation in the 1990s makes a repeat of this experience unlikely; but Fannie Mae and Freddie Mac are also being subjected to new and improved regulation. Again, prospectively, which route is likely to pose the lesser costs and risks? The answer is far from clear, but the question is surely worthy of consideration.

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<sup>22</sup> Brief discussions of this phenomenon can be found in Blair (1991, pp. 427–428) and O'Sullivan (1993, p. 401). Of course, owner-occupiers may be part of an agent-principal problem when they prepare their homes for sale to prospective buyers, but so are landlords when they are preparing to sell their properties. To determine which of these two latter agent-principal problems has greater empirical relevance, one would have to know the relative frequency of turnover of owner-occupier homes and multifamily (landlord) properties and also the relative knowledgeableability of the two categories of buyers.

<sup>23</sup> In the latter category would be programs that would somehow discourage local restrictive zoning on minimum lot sizes or discourage local building codes that needlessly add to construction costs.

<sup>24</sup> See, e.g., White (1991) and Weicher (1994).

<sup>25</sup> See White (1991).

## IV. CONCLUSION

The consequences of a possible privatization of Fannie Mae and Freddie Mac are surely worthy of serious study. Hermalin-Jaffee have written an ambitious paper that accomplishes a great deal. Though there are parts of their argument that could be extended and strengthened, I believe that they generally arrive at sensible conclusions. As they indicate, privatization would be unlikely to have serious adverse effects on competition in mortgage and MBS markets and would likely improve the overall social efficiency of these markets. Their analysis is sound and deserves serious consideration in public policy formulation.

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## FANNIE MAE REVIEW OF THE HERMALIN-JAFFEE PAPER

Hermalin-Jaffee seek to examine the implications for the mortgage finance industry that might result from the full privatization of Fannie Mae and Freddie Mac. Their approach is to use conventional academic theories of industrial organization, which they believe shed light on both the current and prospective industry structure, as well as important public policy issues—specifically, overall economic welfare. Unfortunately, their study suffers from three critical flaws. First, it confines its analysis to only a part of the mortgage market—conforming mortgage securitization—entirely omitting not only the securitization of mortgages insured by the government, but also mortgages that remain outside the securitization process. These various market segments are in vigorous competition with one another, and their shares of the total market are continually changing. Second, in seeking to establish empirical support for their various contentions, the authors focus exclusively on an exceptional period (the late 1980s and early 1990s)—and even then misinterpret much of their own evidence. Third, Hermalin-Jaffee largely ignore the most important function provided by Fannie Mae and Freddie Mac, that of providing liquidity—at all times and in all places—to the mortgage market, even though this is the essential mission of the two firms.

Based on their limited analysis, Hermalin-Jaffee arrive at the following conclusions:

- (1) Fannie Mae and Freddie Mac constitute a tacitly colluding duopoly in the market for the securitization of conforming mortgages, with entry into the market blocked by their GSE status.<sup>1</sup>
- (2) As a result of their tacit collusion, the two firms are able to price above marginal cost, allowing them to realize “economic” profits.
- (3) By contrast, the market for securitization of jumbo mortgages is competitive, open to entry by would-be competitors. No private conduits earn “economic” profits on a sustained basis.
- (4) The effect of full privatization on homeowners is “uncertain”—mortgage rates could rise, fall, or remain the same. Full privatization might, but also might not, increase the volatility of mortgage rates.
- (5) Because the conforming MBS market is not perfectly competitive, it is also not “welfare maximizing.” Thus, it is “highly likely” that full privatization will be “welfare improving.”
- (6) It is unclear whether Fannie Mae and Freddie Mac would dominate the mortgage market (including the jumbo market) after full privatization. This is because it is unclear whether, or to what extent, economies of scale exist as well as whether the “quiet life” hypothesis applies to the two firms.

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<sup>1</sup> Here, and elsewhere, the authors’ wording is imprecise. For example, they state that “the conforming market is a tacitly colluding duopoly”. Because they only examined securitization, however, they should state their conclusion only in reference to “the conforming MBS market” (or some similar formulation). [In Hermalin-Jaffee’s final text in item 1 on p. 297, the wording was changed; see item 7 on p. 335 in their response to discussants. —EDITOR.]



(7) Fannie Mae and Freddie Mac likely would pursue vertical integration for the same reasons private conduits do, namely “synergies, economies of scope, and reduction in transactions costs.” This would lead to greater concentration within the industry, but the authors “believe” that the benefits of cost reduction would outweigh any decline in welfare resulting from reduced competition.<sup>2</sup>

Critical to all their conclusions is the view that Fannie Mae and Freddie Mac tacitly collude to raise prices in the market for conforming MBS.<sup>3</sup> In support of this view they offer a combination of theoretical speculation, mostly of a qualitative nature, and indirect circumstantial evidence of a more quantitative nature. The former is, at most, merely suggestive—on the basis of such ruminations (and a little bit of data) Hermalin-Jaffee can conclude only that “tacit collusion *should be expected* in the conforming market,” not that such collusion in fact occurs.<sup>4</sup> To show the latter, they look at three main pieces of evidence: market shares, profits, and market valuation. (Surprisingly, they make no attempt to analyze price data—see below.) They admit that this evidence is not conclusive, but apparently believe that amassing enough inconclusive evidence—along with the theoretical expectation of tacit collusion—somehow proves their case.<sup>5</sup> In fact, we will show that the data provide no support at all for their thesis of tacit collusion. We examine some aspects of the theoretical argument subsequently.

## I. MORTGAGE MARKET DEFINITION

Before embarking on a discussion of the evidence, it is important to examine the authors’ definition of the appropriate market. They point out correctly that market definition is critical in examining market power. Hermalin-Jaffee choose to define the market as all conventional, conforming mortgages securitized. Although they comment briefly on the exclusion of government-insured and jumbo mortgage loans, they offer no rationale whatsoever for leaving nonsecuritized mortgages out of the discussion. This is an egregious error that causes them to misunderstand the mortgage market and greatly underestimate the extent of competition within the market.

In addition to securitizing pools of mortgages, both Fannie Mae and Freddie Mac purchase mortgage loans for their own portfolios.<sup>6</sup> Consideration of such activities is entirely absent from the Hermalin-Jaffee study, other than their statement that “Fannie Mae and Freddie Mac also purchase

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<sup>2</sup> Hermalin-Jaffee, [pp. 297–299].

<sup>3</sup> Remarkably, they offer no estimate of *how much* they think prices exceed marginal costs. Is it one basis point? Ten basis points? Fifty basis points? This makes a great deal of difference, because if it is only one basis point, for example, it would seem much less likely that privatization could be welfare enhancing.

<sup>4</sup> Hermalin-Jaffee, [p. 247] (emphasis added). Note that again they mistakenly refer to the “conforming market” when they apparently mean only the conforming MBS market. [The title of Table 1 (p. 248) has been changed in the final Hermalin-Jaffee text. —EDITOR]

<sup>5</sup> Hermalin-Jaffee, [p. 253].

<sup>6</sup> They also engage in a number of smaller business activities, such as the fee-based REMIC operations.

mortgages to hold in portfolio and, then, issue debt against these mortgages, but this, too is a form of securitization.”<sup>7</sup> This is misleading, at best; although both portfolio and MBS operations rely on the capital markets, funding mortgages by issuing debt securities is quite different from securitizing mortgage pools. (To take just one obvious difference: the former involves interest rate risk in addition to credit risk while the latter involves only credit risk.) In addition, MBS have quite different properties than debt securities—and there is only partial overlap among investors in each. There is no further discussion of the two firms’ portfolio activities, or those of competing portfolio lenders (such as the thousands of banks and thrifts), nor is portfolio lending included in any of the data the authors use to describe or analyze the mortgage market.

Government ties to the mortgage market are far more extensive than Hermalin-Jaffee imply. They mention the Federal Housing Administration (FHA), the U.S. Department of Veterans Affairs (VA), and the Government National Mortgage Association (Ginnie Mae). They do not mention that: (i) depository institutions can fund mortgages either with deposits backed by federal insurance or with advances from the Federal Home Loan Banks (FHLBanks); (ii) many homebuyers are able to borrow at below-market rates due to tax-advantaged mortgage revenue bonds; (iii) homeowners can take advantage of the mortgage interest deduction, capital gains rollover, and one-time \$150,000 capital gains exclusion on the sale of a home; and (iv) many renters receive rent subsidies or are able to take advantage of lower rents resulting from public housing or the tax-advantaged construction of low-income rental housing (all of which affects the demand for owner-occupied housing).

While the authors were not asked specifically to examine all government ties, these ties are important in considering the impact of full privatization. Hermalin-Jaffee suggest that after full privatization the market would look much like the market for jumbo MBS—which they view as private and competitive. In fact, making Fannie Mae and Freddie Mac fully private may well increase reliance on other government ties. In particular, a greater volume of mortgages is likely to flow to banks and thrifts, implying greater use of federal deposit guarantees or FHLBank advances.

There is a great deal of competition throughout the market for mortgage finance (not just in mortgage originations), and this discussion is missing from the picture Hermalin-Jaffee present. As the authors see it, the only competitor facing Fannie Mae is Freddie Mac (and vice versa). But in addition to competition from each other, the two firms face competition from bank and thrift financing (aided by their federal ties), from Ginnie Mae (a government agency), and from other mortgage investors.<sup>8</sup> The only part of the mortgage market that is “off limits” to Fannie Mae and Freddie Mac is the jumbo market; all loans below the conforming loan limit are eligible for purchase by the two firms. Thus, the conforming mortgage market—both conventional and government—is the appropri-

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<sup>7</sup> Hermalin-Jaffee, [p. 239].

<sup>8</sup> This was acknowledged in the study by Goodman and Passmore, upon which Hermalin-Jaffee rely heavily. See John L. Goodman, Jr. and S. Wayne Passmore, “Market Power and the Pricing of Mortgage Securitization,” Finance and Economics Discussion Series #187, March 1992, p. 11. Note that Ginnie Mae is relevant because Fannie Mae and Freddie Mac, like Ginnie Mae, are permitted to buy mortgages insured by FHA and VA; they are generally “out-competed” by Ginnie Mae, however.

ate market to consider in examining Fannie Mae and Freddie Mac. By restricting consideration to just the securitized, conventional portion of the conforming market, Hermalin-Jaffee seem to be implying that this is a separate and distinct market, when in fact there is a great deal of flux among all parts of the market. Thus, there is considerable variation over time in the relative volume of conventional versus government-insured and securitized versus nonsecuritized mortgages. Depository institution (and other) competitors do not cede some portion of the market in advance to Fannie Mae and Freddie Mac MBS.

## II. THE HERMALIN-JAFFEE EVIDENCE

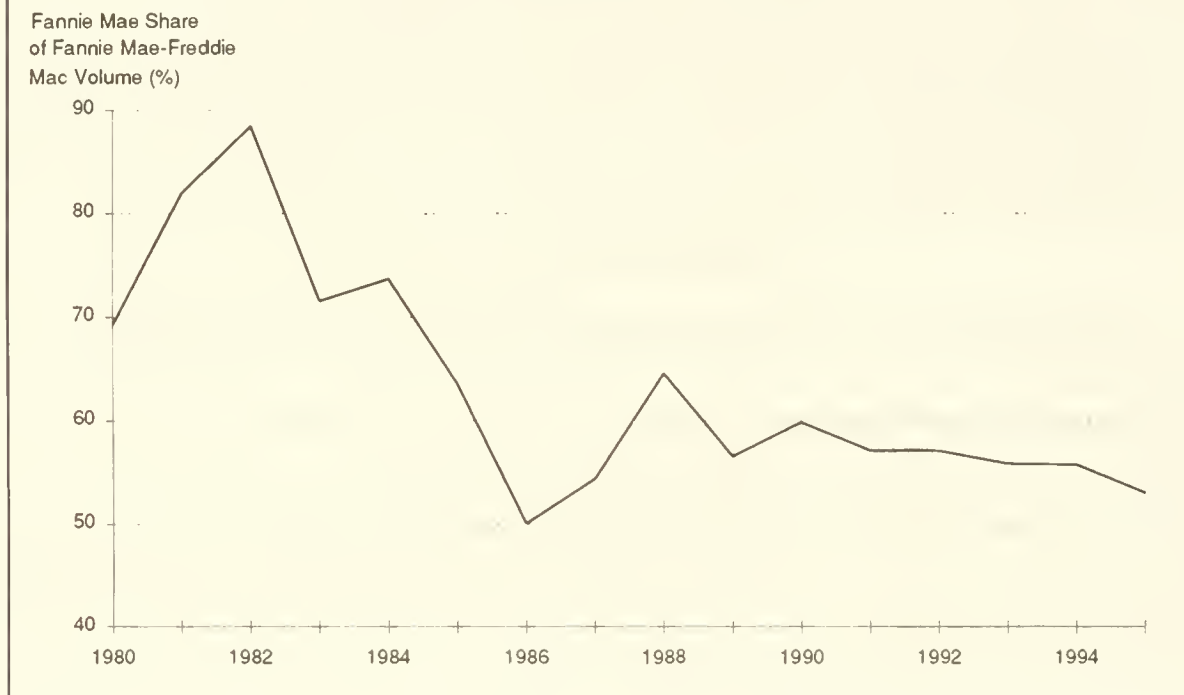
Hermalin-Jaffee offer the following as support for their view that Fannie Mae and Freddie Mac tacitly collude:

- (1) There are only two competitors.
- (2) Fannie Mae and Freddie Mac have roughly equal market shares.
- (3) The market shares were fairly stable over the period 1989–93.
- (4) The share of mortgages securitized is negatively correlated with the volume of mortgages available for securitization.
- (5) The two firms have large accounting profits.
- (6) The two firms have above-average after-tax returns on equity (ROEs).
- (7) The net interest margins for Fannie Mae and Freddie Mac have been fairly constant.
- (8) Each firm's ratio of market value of equity to book value of equity is much greater than one.
- (9) "Tobin's  $q$ " for Fannie Mae was much greater than one in 1989 and 1990.

Let us examine these points in order.

(1) The first point is simply not true, as the foregoing discussion makes clear. It nonetheless appears to be true in the Hermalin-Jaffee study simply because they excluded all other competitors *by definition*. By confining the market they choose to study to conventional, conforming securitization only, they eliminate not only Ginnie Mae but also bank and thrift financing as competition to Fannie Mae and Freddie Mac. Furthermore, even if it made sense to restrict analysis to this market, it is misleading to suggest that there is no competition for the two firms in this market. It is true that virtually all the MBS issued for conventional, conforming mortgages come from Fannie Mae or Freddie Mac. Even so, the volume of such MBS depends heavily on competition from other mortgage investors. Over the course of 1994, for example, depository institutions expanded their mortgage holdings, on both an absolute and relative basis—after troughing in the first quarter at an all-time low of 31.8%, bank and thrift holdings increased to 32.5% of all 1–4 family mortgage debt outstanding. Not coincidentally, Fannie Mae-Freddie Mac MBS fell from 28.8% to 27.7% over that time. If competitors have the power to take business away, surely they have the power to influence

**FIGURE 1**  
**Market Shares Have Not Been Stable**



price.

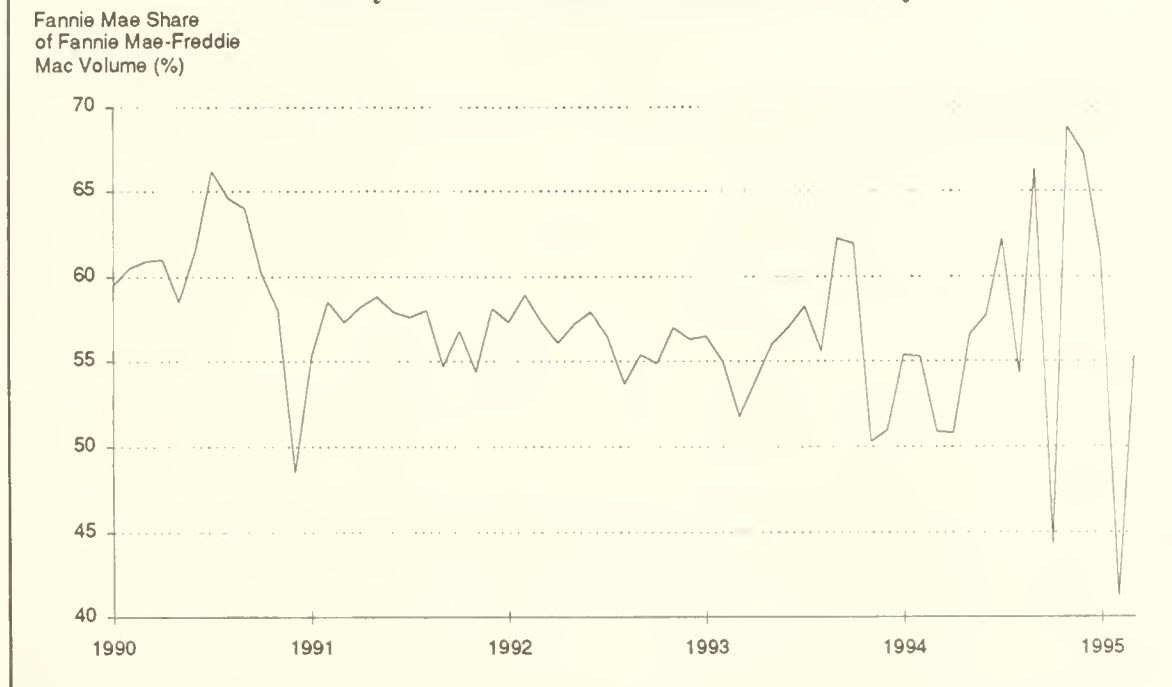
(2) Fannie Mae issued \$128 billion in single-family MBS in 1994, compared with \$117 billion for Freddie Mac. Of the total mortgage volume that resulted in MBS issued by either firm, therefore, Fannie Mae's share was 52% (versus Freddie Mac's 48%). Viewed as shares of the total market, Fannie Mae MBS came to 17% while Freddie Mac MBS constituted 15%. Looking at total business volumes, Fannie Mae's single-family purchases plus swaps totaled \$156 billion, while Freddie Mac's was \$124 billion. For total business, Fannie Mae's share was 56% of the combined volume for both companies. Alternatively, Fannie Mae's volume was 20% of total originations in 1994, compared with 16% for Freddie Mac. For the purposes at hand, it is probably not unreasonable to regard these shares as roughly similar. It would be wrong, however, to suggest that changes in shares of even a percentage point are not important.

(3) This conclusion is a misreading of the data—Hermalin-Jaffee consider too small a timeframe and confine themselves to annual data.<sup>9</sup> In Figure 1, we show how the Fannie Mae versus Freddie Mac share has changed over time. In this figure, we restrict ourselves to annual data, but look at a longer timespan—from 1980 through the first quarter of 1995. One might read the chart as indicating reduced volatility in the market shares over time. Just how wrong such an interpretation

<sup>9</sup> Hermalin-Jaffee present a chart of the Herfindahl index (for their market definition) using annual data for 1989–93.



**FIGURE 2**  
**Monthly Data Confirm Market Share Volatility**



would be is evident in Figure 2, which shows the same share, but on a monthly basis.<sup>10</sup>

(4) The authors do not actually present any evidence of their own showing that the share of mortgages securitized is negatively correlated with the volume of mortgages available for securitization, but rather simply summarize the work of Goodman and Passmore on this point. Hermalin-Jaffee point out that circumstances other than tacit collusion could lead to such a correlation, so that “the Goodman and Passmore results are not conclusive support for our hypothesis that Fannie Mae and Freddie Mac are tacitly colluding.”<sup>11</sup> Goodman and Passmore examined MBS issued by the two firms divided by total fixed-rate originations.<sup>12</sup> Although they chose this ratio for a technical reason—the denominator had the same random walk characteristic as the numerator—there are problems with it. First, Fannie Mae and Freddie Mac securitize adjustable-rate mortgages as well as

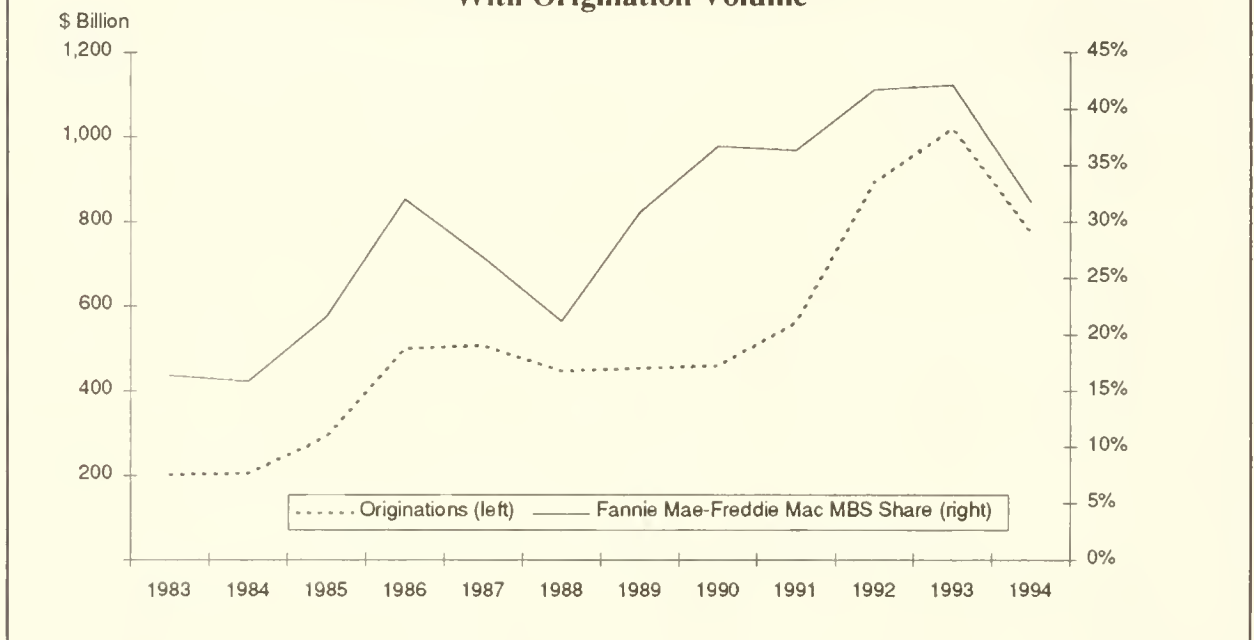
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<sup>10</sup> Goodman and Passmore, (*supra* note 8) show a similar chart; in addition, they conclude that “the shares have shifted over time” (p. 18ff.). It is surprising that Hermalin-Jaffee, who make such extensive use of the Goodman-Passmore piece, do not address these issues.

<sup>11</sup> Hermalin-Jaffee, [p. 248].

<sup>12</sup> It is interesting that this market share definition is completely at odds with the definition selected by Hermalin-Jaffee, yet they seem willing to accept, without comment, this evidence.

**FIGURE 3**  
**Securitization Rate Compared**  
**With Origination Volume**



fixed-rate mortgages (FRMs), so it is unclear why the focus should be restricted to FRMs only.<sup>13</sup> Second, there are no official data on the size of the FRM market, so analysts generally rely on the adjustable-rate mortgage (ARM) share estimates published by the Federal Housing Finance Board (FHFB)—which do not include refinance or government loans in their mix. Third, this definition includes jumbo loans—and unpublished FHFB data indicate that the FRM share is significantly higher for conforming loans than for jumbo loans.

Figure 3 shows the Fannie Mae-Freddie Mac MBS share of total originations along with total originations. In most years—particularly the past 4—the MBS share appears to be cyclical rather than countercyclical.<sup>14</sup> So this piece of evidence actually contradicts the point Hermalin-Jaffee want to make.

(5) The issue of profit is relevant because if Fannie Mae and Freddie Mac are tacitly colluding, they ought to be earning “economic” profits. Whether the two firms have large accounting profits sheds no light on this issue, however. Hermalin-Jaffee themselves point out that accounting profits are not the same as “economic” profits—and the authors must show the existence of the latter if they wish to prove that the two firms are earning above-average profits. Moreover, they provide no criteria for judging what level of accounting profits should be considered “large.” After all,

<sup>13</sup> It is also unclear whether Goodman and Passmore excluded securitization of ARMs from their numerator, because they do not show any of the source data.

<sup>14</sup> The same relation is evident for just the conforming market.

Fannie Mae and Freddie Mac are two of the largest financial firms not only in the United States but in the world, so that one would expect them to earn “large” accounting profits even if their rate of profit were no more than average.

There is another fundamental problem with this measure, however. Hermalin-Jaffee assert that the two firms tacitly collude in the market for conforming *securitization*, but the profit figures the authors use stem not only from securitization activities, but also from portfolio investment and other operations (such as Real Estate Mortgage Investment Conduits [REMICs] issuance). In the case of Fannie Mae, about two-thirds of total revenue is generated from its portfolio operations. It is a gross error to suggest that data on total profits can be used to draw conclusions about securitization activities.

(6) The evidence on ROEs, too, tells us nothing at all about the matter at hand. In the first place, the ROE data suffer from the same problem just mentioned—ROE measures the net return on all business operations, even though tacit collusion is alleged by Hermalin-Jaffee only for MBS pricing. Second, firms can have high ROEs without earning economic profits—a point conceded by the authors.<sup>15</sup> Third, some firms have high ROEs because they have high leverage—that is, the high ROE results not from a “high” numerator (net income) but a low denominator (low capital). To correct for this problem, one ought to look at the return on average assets (ROA). By this measure, the performance of Fannie Mae and Freddie Mac is rather ordinary. Fannie Mae’s ROA in 1994 was 0.87 basis points while Freddie Mac’s ROA was 1.17 basis points. By contrast, the median ROA for commercial banks in 1994 was 1.17 basis points.<sup>16</sup> Fourth, Hermalin-Jaffee consider ROE data for the period 1987–93, but omit data on ROE for the early 1980s when Fannie Mae was losing money. At a minimum, they need to explain why they exclude such data.<sup>17</sup>

Fifth, they neglect to point out that the period examined was one in which both interest rate movements and home price appreciation were more favorable than expected. As a result, defaults were lower than expected. Thus, profits (and ROEs) were “high” not because the two firms were tacitly colluding to raise prices, but because the actual economic environment turned out to be better than that upon which pricing was predicated. Specifically, nationwide home prices increased by about 3.0% to 4.5% during 1981–84, with much lower price movements in the Southwest.<sup>18</sup> Illustrative of mortgage performance during the early 1980s was FHA’s experience, summarized in Table 1. This table shows clearly the very high ever-to-date failure rates of mortgages originated in the early 1980s. Furthermore, this table also shows the dramatic improvement in mortgage performance subsequent to 1985. Home prices nationally increased at annual rates of about 7.0–8.0% from 1986

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<sup>15</sup> Hermalin-Jaffee, [p. 249]. A counterexample makes this clear: Wal-Mart has had ROEs in recent years that have been at least as high as Fannie Mae’s, but one would be hard-pressed to make the case that Wal-Mart is pricing “too high.”

<sup>16</sup> *American Banker*, March 17, 1995, p. 6.

<sup>17</sup> To be sure, Fannie Mae’s losses stemmed from its portfolio business rather than its MBS business; that just underscores how little ROE data tell us about the MBS business.

<sup>18</sup> Fannie Mae-Freddie Mac’s Conventional Mortgage Home Price Index.

TABLE 1

## FHA Single-Family Claim Rates (All LTVs)

Origination Year	Cumulative Claims Rate
1979	9.66%
1980	14.41
1981	20.50
1982	18.99
1983	14.41
1984	18.00
1985	16.03
1986	10.27
1987	6.33
1988	6.28
1989	4.63

Source: Price Waterhouse, *An Actuarial Review for Fiscal Year 1993 of the FHA's Mutual Mortgage Insurance Fund*, May 31, 1994.

to 1989. The rapid rise in home prices, which was unanticipated given the prior years' experience, was a primary determinant of the very good default performance in the latter half of the 1980s and a key contributor to the level of profits for Fannie Mae and Freddie Mac. Beginning in 1990, home price appreciation returned to lower levels. Just when defaults might have been expected to rise again, rates on 30-year fixed-rate mortgages broke out of the 9.75% to 10.75% range in which they had been stuck for several years and kept falling until they reached 6.75% in the fall of 1993. The tidal wave of refinancing that resulted also reduced default rates, as many homeowners with no equity in their homes and unable to continue to make monthly payments got a reprieve with the big drop in their payments.

The impact of refinancing can be expressed in another way. Credit losses on mortgages originated in any year (that year's "book") tend to be low in the first years, then rise sharply, peaking somewhere between years 4 and 8. When a pool of loans refinance, their age is "reset" to zero. Thus, instead of experiencing the high credit losses associated with years 4 and after, such a pool would likely exhibit the lower credit losses typical of newly originated mortgages.

The point is that when the mortgages originated in the late 1980s and early 1990s were insured against credit risk, Fannie Mae and Freddie Mac could not have anticipated these fortuitous circumstances.<sup>19</sup> Moreover, even if they thought such a favorable environment was possible, they probably should not have priced for it: the guaranty fee must be high enough to cover them against

<sup>19</sup> Put differently, *ex post* ROEs that are higher than average do not tell us much (if anything) about *ex ante* ROEs. Of course, it is difficult to estimate the latter, but it is only the *ex ante* ROEs that matter in determining behavior (such as entry and exit). Hermalin-Jaffee seem to recognize this in their discussion of the ratio of market value to book value (see point 8), although they do not make it explicit, perhaps because it would expose the irrelevance of the evidence on this point.



probable losses across all foreseeable economic environments. For this reason, too, the ROE data do not show—or even suggest—what Hermalin-Jaffee would like them to.<sup>20</sup>

(7) The net interest margins for Fannie Mae and Freddie Mac are relevant only to the portfolio business and have nothing whatsoever to do with the MBS business. It is puzzling why Hermalin-Jaffee even bring up net interest margins.

(8) Hermalin-Jaffee suggest, with scant argument, that the ratio of market value of equity to book value of equity is a good indicator of whether firms are expected to earn economic profit: a ratio above 1.0 is said to indicate economic profits. They calculate that the ratios for Fannie Mae and Freddie Mac in 1994 were 2.54 and 2.63, respectively, and say that this suggests, though does not prove, that both firms are earning economic profits. They note two limitations of this ratio—book value typically reflects historic value, which tends to understate market value, and intangible assets generally are not measured in book value—but wrongly claim that “most of Fannie Mae and Freddie Mac’s assets are marked to market.”<sup>21</sup> In fact, virtually none of Fannie Mae’s assets are marked to market. More generally, just how little information about pricing is conveyed by this ratio is evident from examination of further data. For example, the ratio for the entire Standard and Poor’s (S&P) 500 is 2.5.<sup>22</sup> Either economic profits are widespread—in which case the economy is in a state of disequilibrium, contrary to the authors’ implied assumptions (and, in that case, Fannie Mae and Freddie Mac are earning profits at a rate similar to the rest of the firms in the S&P 500)—or a ratio greater than 1.0 is not a reliable indicator of economic profits. The latter is probably correct: after all, Best Buy Company and Home Depot, two low-price, high-volume firms in very competitive markets, had 1994 ratios of 4.2 and 7.3, respectively.

Hermalin-Jaffee mention, in their brief discussion of the ROE data, that in assessing profits one must also look at risk. If they are interested in showing market expectations about profit relative to risk, there is a much easier way, namely through the ratio of price to earnings (PE). Fannie Mae’s PE ratio has been substantially and consistently below that for the S&P 500 (see Figure 4), despite seemingly high earnings and ROEs. Clearly, the market places a lower value on the expected earnings for Fannie Mae than for the market as a whole. The likely reason for such valuation is that Fannie Mae’s earnings are subject to greater-than-average risk, whether that is credit risk, interest

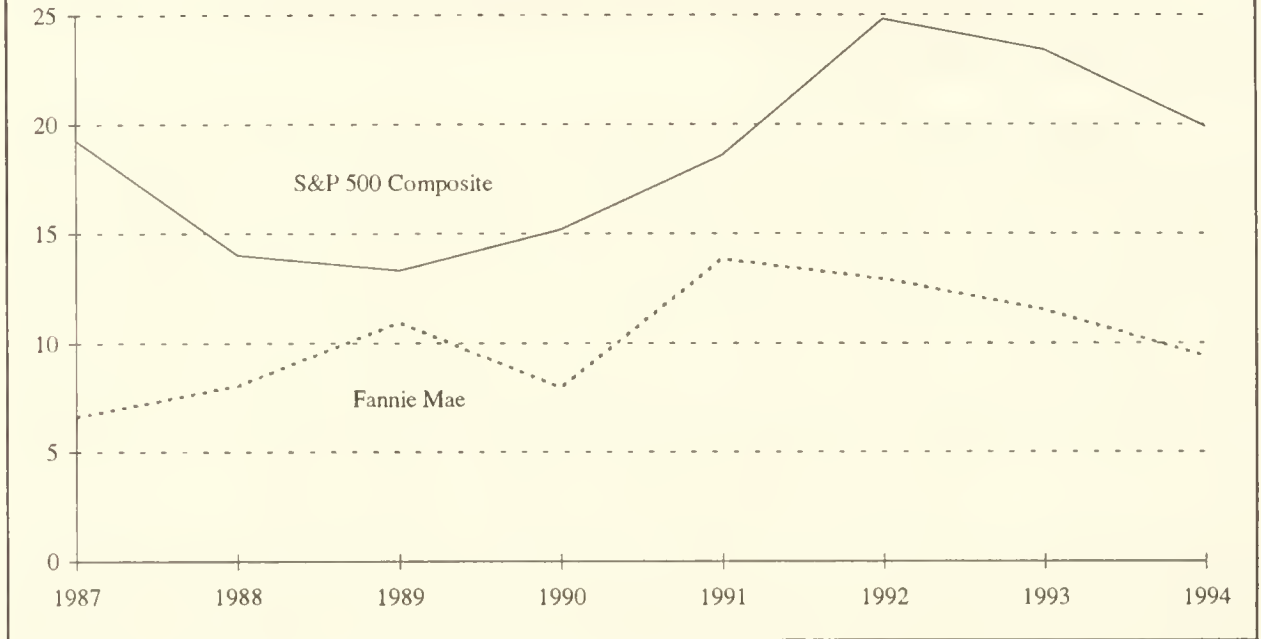
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<sup>20</sup> Goodman and Passmore take note of such explanation—in reference to similar results from their use of the capital asset pricing model (CAPM)—although they add, with no evidence or rationale, that they “believe the persistent excess returns are also evidence that Fannie Mae and Freddie Mac earn above-market profits” (p. 24). Surprisingly, Hermalin-Jaffee do not even make reference to this explanation.

<sup>21</sup> [In Hermalin-Jaffee’s final text, the sentence in which the quoted statement (from their draft) appeared reads, “Most of Fannie Mae’s and Freddie Mac’s assets are closely duration-matched, so swings in market interest rates do not significantly affect the market value of Fannie Mae and Freddie Mac.” (This volume, p. 251.) See also item 7 on page 335 in Hermalin-Jaffee’s response to discussants. —EDITOR.]

<sup>22</sup> See *Weekly Notes*, Bernstein Research, March 31, 1995.

**FIGURE 4**  
**Price-Earnings (PE) Ratios**  
**(four quarter trailing earnings)**



rate risk, management risk, or political risk.<sup>23</sup>

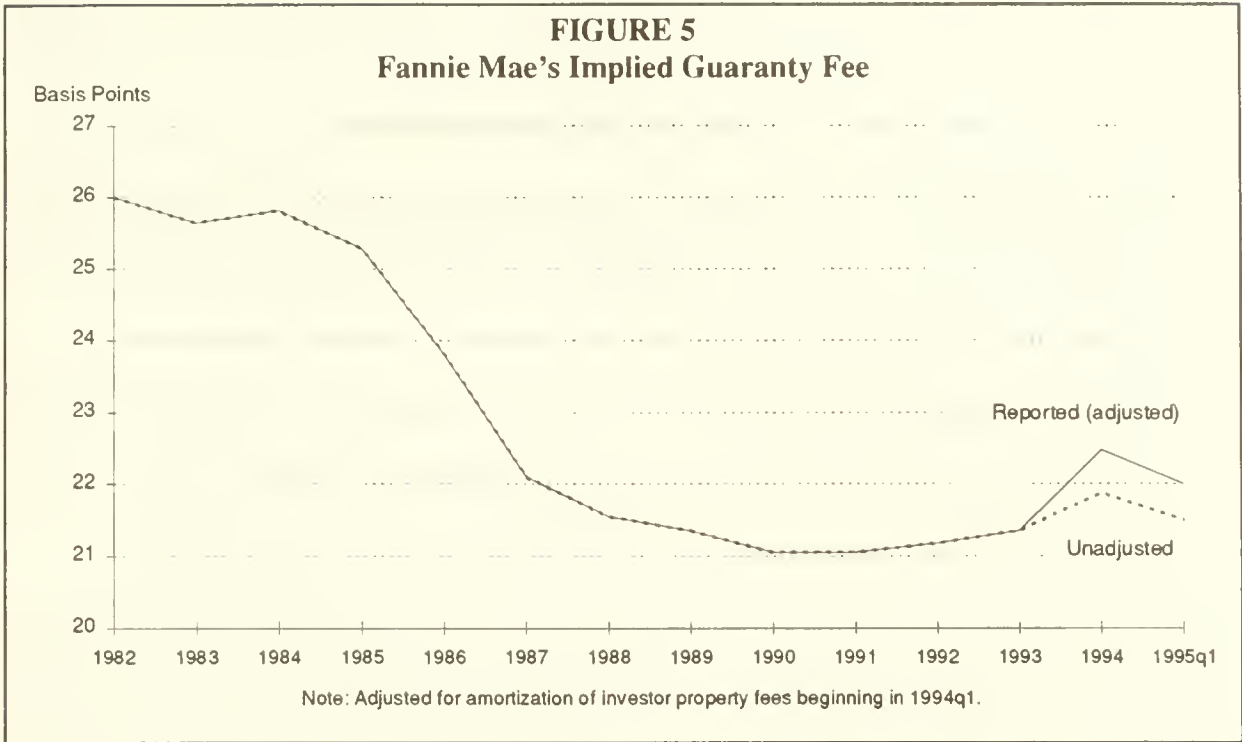
(9) Hermalin-Jaffee view Tobin's  $q$  as similar to their ratio of market value of equity to book value of equity—it “uses a similar ratio, with a similar interpretation” but regard it as “less susceptible to measurement problems.”<sup>24</sup> They cite the Goodman-Passmore estimates of Tobin's  $q$  produced for Fannie Mae and Freddie Mac: for the former, the estimates are 1.6 in 1990 and 1.8 in 1989; for the latter, the estimates are 1.0 in 1990 and 0.6 percent in 1989. The authors follow Goodman and Passmore in claiming that because the Tobin's  $q$  estimates for Fannie Mae are greater than 1.0, this evidence indicates economic profits. One might suppose that to be consistent, they would argue that the Tobin's  $q$  estimates for Freddie Mac show below-average profits. Instead, they claim these figures are due to “measurement error.”<sup>25</sup> This approach—using the data that supports one's assertion and discarding the data that contradicts it—is hardly convincing, especially since their rationale for introducing the Tobin's  $q$  estimates was that they are supposedly “less susceptible to measurement problems.” If Tobin's  $q$  is really so informative, one would expect the authors to investigate this seemingly contradictory data; at a minimum, they should have updated the Goodman-Passmore

<sup>23</sup> The consensus among Wall Street analysts who follow Fannie Mae is that it is mainly the political risk that causes Fannie Mae's stock to trade at a such a substantial PE discount to the market.

<sup>24</sup> Hermalin-Jaffee, [pp. 251, 253].

<sup>25</sup> [In Hermalin-Jaffee's final text, the quoted statement (from their draft) is changed to state that Goodman and Passmore “argue that...low  $q$ 's do not accurately reflect Freddie Mac's true profitability.” (This volume, p. 253.) —EDITOR.]

**FIGURE 5**  
**Fannie Mae's Implied Guaranty Fee**



estimates for 1991–94 to see if this would shed more light on the issue. Instead, they say that “constructing Tobin’s  $q$ ’s for Fannie Mae and Freddie Mac is outside the scope of this report.”<sup>26</sup>

Beyond these specific points, it is surprising that the authors make no reference to actual prices Fannie Mae and Freddie Mac charged. They point out that it is impossible for outsiders to obtain direct price information on securitization activity, but mention that “indirect techniques” may offer insight. In this regard, they make specific reference to the Goodman-Passmore data—guaranty fee income divided by MBS outstanding—but make no attempt to update this data (Goodman and Passmore stopped with 1990) or to analyze it on their own. We provide a chart of such price data in Figure 5.

Hermalin-Jaffee make much of price stability as a characteristic of tacit collusion. Fannie Mae’s average implied guaranty fee actually fell by 19% from 1982 to 1990—hardly the result one expects from tacit collusion. The apparent rise since then is more the result of accounting than pricing. In particular, loan buyups and buydowns are amortized over their expected lives. The latter declined substantially in the huge refinance wave of 1992–94, resulting in an increase in reported guaranty fee income—hence in implied guaranty fees.

In sum, the empirical data provides no meaningful support for the authors’ “conjecture” that Fannie Mae and Freddie Mac tacitly collude to keep the price of securitization above marginal cost.

<sup>26</sup> Hermalin-Jaffee, [p. 253].

It is only their prior presumption of tacit collusion that makes them see this faulty evidence as helpful to their case.

### III. AN ALTERNATIVE PARADIGM

In fact, the evidence is much more suggestive of a perfectly competitive marketplace than one characterized by tacit collusion. This leads us to question whether the basic approach employed by Hermalin-Jaffee to study market power is appropriate.

The standard paradigm assumes that:

- Firms produce a homogeneous commodity.
- All consumers are identical .
- There are no advantages or disadvantages to selling to a particular customer.
- All price information is readily available (at little or no cost).
- All sellers act to maximize economic profits.

In this environment, if one or more firms can influence price by increasing or decreasing quantity, they possess market power. At issue in this essay is whether Fannie Mae and Freddie Mac have market power and, if they do, whether they employ it through tacit collusion to reduce quantity and increase prices to maximize their own profits. Hermalin-Jaffee cite some of the characteristics of the secondary mortgage market—such as the number of competitors, homogeneity of product, and barriers to entry—that they believe are consistent with market power. As described above and below, we believe they are incorrect about some of the characteristics, while they ignore others. We think these institutional facets of the market present serious obstacles to tacit collusion.

All mortgages are not the same. The performance of a mortgage—where performance means the tendency to default, prepay, or continue outstanding—is a function of, among other things:

- The downpayment.
- The market value of the homeowner's equity.
- The note rate on the mortgage.
- The age of the loan.
- The geographic location.
- The owner-occupancy status (owner, investor, or second home).
- The property type (single-family detached, condo, coop, or number of units in structure).
- The type of transaction—original mortgage or refinancing.
- The product type.
- The mortgage term (rate of amortization).
- The payment changes (teasers and index movements for ARMs; buydowns for FRMs).
- The borrower's housing expense-to-income ratio.
- The level of mortgage insurance coverage.
- Credit enhancements (e.g., recourse, spread accounts, pool insurance).
- The quality of the originator's quality control and underwriting.



Because all of the above influence mortgage performance, there are obviously many possible combinations of risk characteristics in any one mortgage or pool of mortgages. Unlike grades of steel, meat, grains, oils, metals, and their derivative products, there is no grading or standardization of mortgages. Similarly, whereas one can readily find advertized prices for cars, computers, gasoline, loan rates, household appliances, and most other goods and services, they cannot find advertized guaranty fees for bearing the credit risk on mortgage pools. This is because the lack of standardization results in all fees being negotiated.

Such a market, characterized by negotiated pricing without public quotes, is different from the markets one usually finds in economic theory. There is no auctioneer ensuring that the markets clear, nor are there any advertisements with fee quotes. Information in this market is imperfect, with Fannie Mae and Freddie Mac competing for a lender's business with only the lender knowing the fees quoted by the two firms. This makes it extremely difficult to obtain a coordinated pricing outcome.

The conventional paradigm assumes that all the players (in this case, the two duopolists) have the same payoffs. Generally this is an economic payoff such as profits or the present value of current and future net income. Fannie Mae and Freddie Mac have many goals, however. In addition to showing profit for shareholders, the firms must meet a variety of corporate and regulatory goals (an example of the latter would be the "special affordable" goal) as well as fulfill the statutory mission of serving all borrowers at all times. Sometimes the various goals and objectives are mutually inconsistent, requiring the firms to make tradeoffs in particular deals. Similar deals are not always handled in the same way, nor do the two firms have the same view of the tradeoffs. Indeed, assessing the tradeoff is difficult to do even internally; it is very unlikely that a payoff structure could exist that would mutually satisfy both firms' goals and lead to tacit collusion on prices.

Hermalin-Jaffee assume that all lenders are small and that there are no advantages or disadvantages to selling to one institution over another. But, Fannie Mae and Freddie Mac do not price each pool individually, nor is their business made up predominantly of \$5 million deals. In addition to serving smaller lenders, we also negotiate master commitments with lenders, which not infrequently may range from \$3–15 billion. The actual MBS pools are deliveries under these master commitments with the previously negotiated price. Consequently, losing one of these deals could mean losing as much as \$15 billion in volume.

"Coordinated" outcomes without explicit collusion implies payoffs, pricing strategies, and response functions within the context of a "game" that is repeated over and over. The authors believe that tacit collusion is facilitated by the scarcity of sellers, product homogeneity, and barriers to entry. We have discussed other institutional factors that characterize the mortgage market that make tacit collusion more difficult—in particular, imperfect information, multiple payoff goals, the large size of negotiated commitments, and the heterogeneity of mortgages. Hermalin-Jaffee believe market power resides with Fannie Mae and Freddie Mac. Our view is that the two firms compete for each customer's business, where only the lender has perfect price information. Market power is not held by two perfectly informed duopsonists purchasing mortgages from a set of small lenders, but rather

resides with the lender who gets to negotiate with two competing firms in a world of asymmetric information.

Tacit collusion implies that the firms can do “better” (i.e., earn greater profits) than in the perfectly competitive situation. We believe that the characteristics of the mortgage market make it very unlikely that the two firms can do better. Even if they found themselves in a better situation, they could only stay there if there were some credible threat that could prevent the other firm from cheating. With “noise” in prices, multiple corporate goals, regulatory mandates for certain types of lending activity, and a special mission, the likelihood of a stable system of coordinated pricing by Fannie Mae and Freddie Mac is extremely remote. This conclusion is consistent with the charts depicting the shifting market shares and price movements, as well as the findings that conforming loan rates are 20 to 50 basis points lower than rates on jumbo loans.<sup>27</sup>

Indeed, the combination of this lowering of rates and the relatively low price Fannie Mae and Freddie Mac charge for their securitization services—that is, their guaranty fees—indicate the absence of tacit collusion between the two firms. Fannie Mae’s average guaranty fee—guaranty fee income divided by net MBS outstanding—is about 21.5 basis points, and this fee represents gross revenues, before administrative expenses and credit losses. By comparison, numerous studies have concluded that the two firms’ behavior causes conventional, conforming fixed-rate mortgage yields to be around 20 to 50 basis points below what they otherwise would be. If Fannie Mae and Freddie Mac were effective tacit colluders, one would think they would be charging considerably higher fees, since there would appear to be ample room to do so. These figures and studies strongly indicate not only the absence of tacit collusion, but also that a substantial portion of the benefits of the firms’ special status—over and above the enhanced liquidity to the system this status provides the mortgage market—goes directly to homeowners with conventional, conforming mortgages.

#### IV. WELFARE IMPLICATIONS AND MORTGAGE MARKET LIQUIDITY

The Hermalin-Jaffee claim that full privatization probably would enhance welfare is based on three sorts of considerations. First, on the premise that Fannie Mae and Freddie Mac are a tacitly colluding duopoly, making them fully private would increase competition and welfare.<sup>28</sup> Second, the federal government’s implicit guarantee results in implicit taxation, which is “distortionary and, hence, welfare reducing.”<sup>29</sup> Third, there are no market imperfections that are overcome by the special status of Fannie Mae and Freddie Mac.<sup>30</sup> All of these are flawed.

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<sup>27</sup> See, for example, Cotterman-Pearce’s paper in this volume, and Patric H. Hendershott and James D. Shilling, “The Impact of Agencies of Conventional Fixed-Rate Mortgage Yields,” *The Journal of Real Estate Finance and Economics*, June 1989, pp. 101–115.

<sup>28</sup> Hermalin-Jaffee, [pp. 285ff].

<sup>29</sup> Hermalin-Jaffee, [p. 288].

<sup>30</sup> Hermalin-Jaffee, [pp. 294–296].

(1) We have already shown that the evidence does not support the view that Fannie Mae and Freddie Mac tacitly collude on MBS pricing (indeed, we have shown that the evidence can be better explained by a model of competition in the secondary market). If there is no tacit collusion, then the authors' first argument collapses (along with their assertion—contrary to the conclusions of all other analysts—that mortgage rates conceivably could fall with full privatization).

Actually, even if there were tacit collusion, the Hermalin-Jaffee argument does not hold. The authors equate the rest of the market with the market for jumbo securities—which they characterize as competitive—and assert that making Fannie Mae and Freddie Mac fully private will make the whole market look like the jumbo MBS market today. In fact, making the two firms fully private surely would increase the market share of other competitors—including the FHA, Ginnie Mae, and federally insured banks and thrifts, using *their* government-sponsored enterprise, the FHLBanks. This part of the mortgage market may or may not be competitive—Hermalin-Jaffee never ask, much less answer, this question. In any case, increasing these competitors' share may not lessen, and might well increase, the reliance on government guarantees, both explicit and implicit. Even if there were potential static welfare gains that would result from privatizing Fannie Mae and Freddie Mac—and we think there are not—they would be countered by the welfare losses—in the Hermalin-Jaffee sense—involved with extending all these other government guarantees.

(2) The assertion that the federal government's implicit guarantee of Fannie Mae and Freddie Mac obligations causes implicit (and distortionary) taxation is one variant of the "contingent liability" argument. That is, their special status results in virtually no current costs to the government; it is only in the event that either firm defaults on its obligations that the government could in theory be subject to significant costs, which would need to be recouped by additional taxes.<sup>31</sup> They do not actually address this issue, however, apparently because it was raised in an earlier paper in this series.<sup>32</sup>

We discussed this at length in responding to the Stanton paper; the following summarizes that discussion. The vast bulk of Fannie Mae and Freddie Mac obligations are collateralized by one of the safest of real assets—owner-occupied housing. Those obligations are supported by additional collateral in the form of owner downpayments and mortgage insurance, which together equal at least 25% of the mortgage loan amount. In addition to this collateral, both firms have substantial capital to guard against risks of all types. Further, the adequacy of that capital is not in dispute. Each congressionally mandated study of Fannie Mae and Freddie Mac reported that the two firms were safe and sound, were operating prudently, and posed negligible risk to the government—and the Office of Management and Budget (OMB) concurred in its 1991 and 1992 budget submissions, describing the risk that the capital of the two firms might prove inadequate as "close to zero."<sup>33</sup>

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<sup>31</sup> Even the current cost of ensuring the safety and soundness of Fannie Mae and Freddie Mac—a role performed by the Office of Federal Housing Enterprise Oversight (OFHEO)—is borne by the two firms themselves.

<sup>32</sup> See Stanton's paper in this volume.

<sup>33</sup> U.S. Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (April 1991); U.S. General Accounting Office, *Government-Sponsored Enterprises: The Government's Exposure to Risk* (August 1990) and (continued...)



Since then, the risk has only diminished. In late 1992, the Congress introduced new and tougher capital requirements as well as a new safety and soundness regulator dedicated solely to Fannie Mae and Freddie Mac. Required to report quarterly on the two firms, OFHEO has determined, in eight consecutive reports issued thus far, that Fannie Mae and Freddie Mac not only meet, but actually exceed, the highest level (“adequately capitalized”).<sup>34</sup> OFHEO is now well along in the process of establishing a state-of-the-art stress test that will provide further assurance of the capital adequacy of Fannie Mae and Freddie Mac. This test will require that each firm remain solvent in a catastrophic economic scenario in which mortgage defaults skyrocket to record levels while interest rates surge (or plummet) sharply and remain at historically high (or low) levels for 10 years—a far more stringent requirement than faced by any other financial institution, including banks, thrifts, and the FHLBanks.

Finally, the government may not actually shed all contingent liability by making Fannie Mae and Freddie Mac fully private. In the past, the government has interceded to help some fully private firms (Lockheed and Chrysler, for example) threatened with bankruptcy, on the premise that their failure would cause excessive harm to other policy or economic interests—the “too big to fail” guarantee.<sup>35</sup>

Regarding the authors’ implicit taxation assertion—assuming for the sake of brevity, that taxation may be distortionary, and an implicit guarantee may mean implicit taxation—some perspective is necessary here. This is entirely a theoretical assertion. The likelihood of Fannie Mae and Freddie Mac defaulting on their obligations and presenting a loss to taxpayers is, by all accounts, virtually nil.

(3) Hermalin-Jaffee consider only two kinds of possible market imperfections that could conceivably warrant the special status of Fannie Mae and Freddie Mac: overcoming “thin” markets and overcoming asymmetries of information concerning risk.<sup>36</sup> The former problem is one of liquidity—without the implicit federal guarantee, private investors would be less willing to hold MBS—and might even be unwilling to hold them at all—so that the market might not even exist.

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(...continued)

*Government-Sponsored Enterprises: A Framework for Limiting the Government’s Exposure to Risk* (May 1991); U.S. Department of Housing and Urban Development, *1990 Report to Congress on Fannie Mae* (July 1991); U.S. Department of the Treasury, *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (May 1990) and *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (April 1991). See also U.S. Office of Management and Budget, *Budget of the United States Government FY92 229 Part II* (1991).

<sup>34</sup> Most recently in a letter dated February 24, 1995, from Mark Kinsey, Acting Director, OFHEO, to James A. Johnson, Chairman and Chief Executive Officer, Fannie Mae.

<sup>35</sup> Hermalin-Jaffee are aware of this, but discuss the “too big to fail” implicit guarantee only from the standpoint of whether such a guarantee for a fully privatized Fannie Mae and Freddie Mac would be as effective a barrier to entry as they believe the current implicit guarantee is.

<sup>36</sup> Hermalin-Jaffee, [p. 295]. They also mention a third possibility: provision of mortgage credit to “underserved” borrowers, but indicate that consideration of that possibility lies “beyond the scope of this report.”



The authors assert that “without the Federal guarantee some investors would switch to other assets, but the resulting reduction in liquidity should not cause the market to collapse.”<sup>37</sup> Nowhere do the authors offer support for their confidence that liquidity in the mortgage market is not a problem—other than to suggest that since the jumbo MBS market seems to function smoothly at present, therefore the entire market would after the privatizing of Fannie Mae and Freddie Mac. There are two problems with this approach. First, liquidity never seems to be very important—until it is really needed. That is, most of the time markets function fairly smoothly and investors may be willing to trade off liquidity for yield. At certain points in the cycle, however, or when a crisis hits, liquidity becomes crucial.<sup>38</sup> It is not clear that the jumbo market has been seriously tested on this score. If Hermalin-Jaffee think the jumbo MBS market has proven that it will provide sufficient liquidity at the most difficult times, then they ought to present evidence to support such a view. Second, the fact that the market functions smoothly now is no proof that it would continue to function smoothly if Fannie Mae and Freddie Mac were fully private—just as the fact that no widespread bank “runs” have occurred since the advent of federal deposit insurance means that such insurance has outlived its usefulness and that no bank runs would occur in its absence.

Providing liquidity to the residential mortgage market is at the core of Fannie Mae’s and Freddie Mac’s activities; it is surprising that Hermalin-Jaffee offer so little analysis of this aspect. The special mission of Fannie Mae and Freddie Mac requires them to be in all markets at all times. Fully private firms have no such obligation. That explains the very different responses to regional downturns. When, for example, oil prices fell, turning boom into bust throughout the “oil patch” states, many private firms cut back on (or eliminated) their mortgage lending in those states. By contrast, Fannie Mae remained an active buyer of both new and seasoned home mortgages.<sup>39</sup> Besides swapping loans for MBS, mortgage lenders even in regions facing economic difficulties can sell mortgages to Fannie Mae and Freddie Mac for cash at the same posted prices as lenders everywhere.

The universal availability of mortgage credit supports not only declining markets, but strong markets as well—buyers in the latter can be sure that when they choose to sell their homes, mortgage credit will be available for the next buyer, even if the region is faring poorly at the time. Indeed, this market presence helps all homeowners: by ensuring that mortgage credit is always available, Fannie Mae and Freddie Mac reduce cyclical swings in the housing market. By doing so, they lower the cost of mortgage credit over the whole business cycle, thereby reducing mortgage rates. This housing

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<sup>37</sup> Hermalin-Jaffee, [p. 295]. They go on, in a footnote, to assert that this switching *should* occur, since otherwise there must be “crowding out” of other securities—most likely Treasury securities. They do not actually provide any analysis, however, nor do they seem aware of the research that has already been done on this issue. The CBO summarized such research, noting that the impact of all security issuance by all government-sponsored enterprises on Treasury borrowing rates is extremely small. U.S. Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises*, April 1991, pp. 17–19.

<sup>38</sup> This was evident, for example, in the “credit crunch” of the early 1990s that affected most financial sectors—but not residential mortgages.

<sup>39</sup> As a result, Fannie Mae’s purchases relative to total loan originations in Texas, for example, almost doubled. A similar trend was evident in the other energy states as well as in New England and California in the late 1980s and early 1990s.

market stability benefits homeowners and homebuyers across the entire spectrum, not just conforming borrowers.<sup>40</sup>

Hermalin-Jaffee apparently would argue that such provision of liquidity by Fannie Mae and Freddie Mac—mandated by their charters—actually reduces welfare because it forces credit into channels that a private, competitive market would not fund. Put differently, there were other, competing uses of these funds, which, because they had higher expected returns, would have provided greater social benefit. This conclusion is derived from standard economic welfare theory—but that theory requires a host of assumptions about the economy in order to reach such a conclusion. Nowhere do Hermalin-Jaffee state what these assumptions are; nor do they attempt to show that the assumptions are met. In fact, the assumptions generally involve fully private firms operating freely in a perfectly competitive market, assumptions that are directly contradicted here. As pointed out above, the housing and mortgage finance markets are replete with both direct and indirect government supports, and financial institutions generally are among the most heavily regulated firms in the economy. One cannot apply the conclusions of welfare theory to circumstances that do not fit the model.<sup>41</sup>

More importantly, they deny—implicitly—that there is any social benefit from assuring liquidity in the residential mortgage markets in all parts of the country in all phases of the cycle. Instead, they seem to suggest that “the market knows best.”<sup>42</sup> This view is fundamentally at odds with long-standing public policy of providing various kinds of government support and assistance to housing and the mortgage market. Fannie Mae and Freddie Mac are doing what their evolving mission and mandates ask of them.<sup>43</sup> Hermalin-Jaffee offer no evidence that such societal preferences have changed.

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<sup>40</sup> This is not to say that Fannie Mae and Freddie Mac have the power to eliminate entirely the cyclical nature of residential construction and home sales, as both depend upon not only mortgage rates but also job and income growth. Furthermore, Fannie Mae and Freddie Mac cannot prevent mortgage rates from rising and falling. (No doubt this is a good thing, or the job of the Federal Reserve would be far more difficult.)

<sup>41</sup> At a minimum, analysis is required to show why such conclusions should be expected to hold despite the fact the model’s assumptions do not hold. Note that this criticism is hardly new. It dates back at least to Lipsey and Lancaster’s 1956 paper on the “theory of second best” (Lipsey, R.G. and Lancaster, K., “The General Theory of Second Best,” *Review of Economic Studies*, 24(1), October 1956, pp. 11-32.) As *The New Palgrave Dictionary of Economics* explains, “The implication of this theorem was that most of the simple and general guidelines for policy provided by welfare economics—e.g. the ‘Paretian conditions’ stating that price should equal marginal cost—would not be relevant for real-world economies which are likely to be subject to constraints on policy” (London: The MacMillan Press, Ltd., 1987, p. 80).

<sup>42</sup> This is the implication of their comment that investors *should* be switched out of mortgages, if the only reason they engage in such investment is the implicit government guaranty. See footnote 37.

<sup>43</sup> The FHEFSSA reaffirmed and expanded Fannie Mae’s and Freddie Mac’s mission and mandates.

## RESPONSE TO DISCUSSANTS

**Benjamin E. Hermalin and Dwight M. Jaffee**

Our paper has two primary conclusions:

- (1) The market for securitized mortgages would operate efficiently and competitively following the privatization of Fannie Mae and Freddie Mac.
- (2) The privatization of Fannie Mae and Freddie Mac will be welfare enhancing. Most importantly, the taxpayers of the country will be direct beneficiaries of privatization, outweighing any possible losses of mortgage borrowers (through higher mortgage rates). Only the management and shareholders of Fannie Mae and Freddie Mac are unambiguous losers.

We find that the comments of our discussants do not raise any conflicts with these conclusions and in some cases the comments actually reinforce our arguments. The academic discussants, however, do raise four questions about some technical aspects of our analysis, and we take this opportunity to clarify these points. We then turn to the issues raised by Fannie Mae.

### I. RESPONSE TO ACADEMIC DISCUSSANTS

1. Mr. Kaufman raises questions concerning our analysis of the capital adequacy of Fannie Mae and Freddie Mac following privatization, particularly with regard to off-balance sheet obligations. This is a difficult question to answer completely because the capital available to Fannie Mae and Freddie Mac and their capital needs will depend critically on the details of the privatization plan that is adopted. In any case, we fully agree with Kaufman's conclusion that the "GSEs would be able to meet these standards as private entities with little difficulty."

2. Mr. White suggests that we largely neglect the (input) supply and pricing of the residential mortgages. It is true that our focus is on the value-adding activity of Fannie Mae and Freddie Mac, namely, the creation of securitized mortgages. A detailed industrial organization analysis of these input markets would have more than doubled the length of our study and was well beyond any proposed scope. However, the effects of Fannie Mae and Freddie Mac privatization on the input markets and on the interest rates paid by mortgage borrowers was fully included in our welfare analysis.

3. White raises the possibility that the high accounting profits earned by Fannie Mae and Freddie Mac might be due to rising marginal cost curves and are not due to tacit collusion between them. However, in White's scenario, the high profit margins should invite entry by other competitors, thus forcing down the profits. In other words, in a competitive market there must be a marginal firm that is earning zero economic profits. The absence of such a marginal firm in reality confirms our position that Fannie Mae and Freddie Mac are earning excess profits based on their market power.



4. White raises the question of whether the effects of Fannie Mae and Freddie Mac in possibly raising homeownership in the United States should have been included in our welfare analysis. We did not include this factor, however, for exactly the reasons that White states, namely that Fannie Mae and Freddie Mac are not an efficient mechanism for subsidizing homeownership. Furthermore, regardless of the efficacy of using Fannie Mae and Freddie Mac to subsidize homeownership, we do not see why a principal-agent problem in the rental market creates a need for subsidies in the homeowner market—agency costs are no different than the other costs that affect homeownership.

## II. RESPONSE TO FANNIE MAE

We find that we disagree with almost every point made in the Fannie Mae commentary. It does not seem productive to answer every minor question raised, so we will focus our response on issues that might push the discussion forward.

1. Fannie Mae claims we have made the egregious error of leaving nonsecuritized mortgages out of the discussion, thus greatly underestimating the extent of competition within the market. We do agree that the market for mortgage originations is competitive, and that some mortgage originations become securitized mortgages and others become nonsecuritized mortgages. But this has nothing to do with the market power of Fannie Mae and Freddie Mac in the market for securitized mortgages. It is as if the Big 3 auto manufacturers tried to argue that they are really the Little 1000 because they buy screws, sheet metal, and tires from a competitive supplier industry of thousands. In reality, the competitive nature of the mortgage origination industry actually means that Fannie Mae and Freddie Mac do not have to share their market power with their suppliers.

2. On a related point, Fannie Mae argues that our analysis is misleading because we do not distinguish between the mortgages they fund as MBSs and the mortgages they fund with mortgage-backed bonds. Our answer is very simple: In both cases, Fannie Mae is selling MBSs to capital investors, and the differences between the forms of MBSs are of no importance for the conclusions of our study.

3. We will not go into a detailed response to the arguments made with regard to Fannie Mae's Figures 1 and 2. However, we will point out that the graphs greatly magnify the appearance of volatility by truncating the vertical axis at 40% and by plotting monthly data. (Why not daily data, for which the shares might bounce between 0% and 100%?)

4. Fannie Mae's response offers an "alternative paradigm" in order to argue that perfect competition is more accurate than tacit collusion as a description of their market. Note, however, that their list of characteristics of the "standard paradigm" fails to list the most critical feature, namely, a large number of competitors. This is the main (although not the only) reason we come to the conclusion that Fannie Mae and Freddie Mac and the market in which they operate is not described by the alternative or standard paradigm.



5. Fannie Mae cites studies indicating that the activity of Fannie Mae and Freddie Mac may well reduce the mortgage interest rates paid by many borrowers. They fail to note, however, that our analysis certainly includes this effect. This does not change our conclusion, however, that subsidies to Fannie Mae and Freddie Mac are economically inefficient, not to mention the dubious value of the income redistribution they create from the taxpayers to the shareholders of Fannie Mae and a subset of mortgage borrowers.

6. Fannie Mae concludes its commentary with a second-best argument. In this context, the argument means that if Fannie Mae and Freddie Mac were privatized, then more reliance might be placed on other forms of government subsidies to the mortgage market, such as FHA, Ginnie Mae, and federally insured banks and thrifts. In our view, the only point is that these other forms of government subsidies should be scrutinized and evaluated in the same manner as we have done for Fannie Mae and Freddie Mac.

7. Finally, we have clarified the final version of our paper to remove some ambiguity that we seem to have created for our Fannie Mae readers. In their footnotes 1 and 4, they criticize our usage of “the conforming market,” and so we have changed our text to their desired terminology, “the conforming MBS market.” In their listed point 8, we have corrected our text to indicate which Fannie Mae and Freddie Mac assets are marked to market.



**IMPLICATIONS OF PRIVATIZATION:  
THE ATTAINMENT OF SOCIAL GOALS**

**Susan Wachter  
James Follain  
Peter Linneman  
Roberto G. Quercia  
George McCarthy**





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*A commentary on the March 22, 1995 draft of this paper by Anthony M. Yezer begins on page 378, and the authors' response to Mr. Yezer's comments appears on page 382. Fannie Mae's review of the paper begins on page 383.*

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## I. INTRODUCTION

The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) are shareholder-owned, for-profit corporations chartered by the federal government with special privileges and responsibilities. Among the statutory benefits that federal law confers on Fannie Mae and Freddie Mac are exemptions from state and local taxes, Securities and Exchange Commission (SEC) regulations, and state security laws. These privileges, among others, give government-sponsored housing enterprises (GSEs) “federal agency” status in capital markets and access to funds at favorable rates. Besides conferring special advantages, the federal charters limit the scope of services that Fannie Mae and Freddie Mac may provide to secondary market activity, including the purchase and securitization of mortgages.

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSSA) calls for study of the desirability of fully privatizing the GSEs, thus repealing their federal charters. The legislation also mandates study of the potential social costs of such restructuring. Privatization may have important consequences for social objectives, currently advanced through special responsibilities, imposed on the GSEs by virtue of their federal charters.

The central objective of this paper is to consider the impact of privatization on the social objectives of the two GSEs. According to their charters and other statutes, the GSEs are to serve public purposes which include (among others):

- (1) Promotion of homeownership through the purchase and securitization of mortgages, and promotion of low-income homeownership through special programs.
- (2) Promotion of the development of rental housing through multifamily lending programs.
- (3) Reduction of redlining and racial discrimination in mortgage lending and promotion of neighborhood reinvestment in the achievement of the above goals.

The 1992 GSE legislation rearticulated the roles of Fannie Mae and Freddie Mac in the promotion of affordable housing. The GSEs have been given interim goals for lending in central cities, rural areas, and other areas defined to be “underserved,” and for lending to lower income households. In 1993 the GSEs met the latter, but not the former goal. In 1994 these targets specify that 30% of mortgage loan purchases should be of loans made to borrowers with incomes at or below their areas’ median, and those 30% should be in central cities. By 1995 the Secretary of Housing and Urban Development is to replace these interim with permanent affordable housing goals. The 1992 legislation also, more generally, directs the corporations to serve both ownership and rental affordable housing needs.

In their operations, the GSEs have placed different emphasis on the achievement of these goals. On the homeownership side, the GSEs have concentrated on the market for conventional single-family home mortgages and, through their secondary market activity, the GSEs have succeeded in dominating this market. The proportion of mortgages purchased through low-income homeownership programs is low relative to overall GSE conventional activity. On the rental side,

GSE activity has unfolded in a number of multifamily lending programs. The volume of multifamily lending is small compared both with conventional single-family lending and with the overall size of the market for multifamily lending.

In the following, we analyze how complete privatization of Fannie Mae and Freddie Mac could affect the public purposes listed above, and, more generally, the availability of mortgage credit across sociodemographic groups and geographic areas. Given the differences in emphasis, two different approaches are used to assess the effect of privatization on the achievement of goals. On the homeownership side, we focus on the effect of privatization on ownership costs, affordability, and ownership rates due to possible changes in the conventional mortgage market. On the rental side, we examine the GSEs' multifamily lending programs, relative to similar programs under the U.S. Department of Housing and Urban Development (HUD).

We analyze the effects of privatization in homeownership and rental markets in Sections II and III. We discuss the possible impacts of restructuring Fannie Mae and Freddie Mac on redlining and neighborhood reinvestment in Section IV. We present conclusions in Section V.

## **II. EFFECTS ON OWNER-OCCUPIED HOUSING MARKET**

The fundamental question that this section addresses is how full GSE privatization may affect social goals in owner-occupied housing markets. After introducing the role of GSEs in homeownership markets, we analyze this question first by estimating an empirical model. We also evaluate whether GSE special housing programs help achieve social goals and whether existing or new government programs could substitute for GSE activity. We conclude with the policy implications of the analysis for privatization based upon consideration of single-family mortgage markets.

### **II.1. Effects of Privatization of GSEs on Homeownership**

Important determinants in the decision to become a homeowner include factors that affect the relative cost of owning compared with renting, current and lifetime earnings and wealth, and household demographic characteristics.<sup>1</sup> An increase in the relative cost of owning decreases households' probability of becoming homeowners. Changes in earnings and wealth potentially have two effects on ownership: Increased earnings and net assets raise lifetime wealth, increasing the propensity to own; and additional current income and, perhaps more importantly, wealth reduce income and downpayment constraints, thereby also raising the probability of ownership.

By facilitating the flow of mortgage credit over time and between places, secondary market entities may promote ownership, primarily through effects that increase the affordability and decrease the costs of ownership.<sup>2</sup> In general, they may do so by purchasing and securitizing loans originated by primary lenders. This enables mortgage originators to sell loans, which are relatively illiquid assets, thus raising new funds to extend new loans to potential borrowers.



Throughout the 1980s Fannie Mae and Freddie Mac contributed to the growth of securitization and the secondary market. In part, this growth was attributable to the unraveling of the thrift debacle, and, in part, to financial innovations of the GSEs. Within the market for loans below their loan limit, the GSEs now dominate the market. In 1992, of the \$183.8 billion in net investment in U.S. residential mortgage debt, Fannie Mae accounted for \$98 billion and Freddie Mac \$48 billion, 79% of the total.<sup>3</sup>

The original balance in the mortgages that GSEs can purchase is limited by law to specific maximum amounts which are adjusted over time. In 1994, the GSEs could purchase single-family mortgages of up to \$203,150. This conforming loan limit is adjusted each year to reflect percent increases in the national average purchase price for all conventionally financed homes.<sup>4</sup> Recently, three-fourths of all conventional (non-government insured or guaranteed) loans have been at or below these limits (Cotterman and Pearce 1994).

The GSEs can purchase loans at or below the conforming loan limit, including loans below the Federal Housing Administration (FHA) ceiling.<sup>5</sup> However, they do not have as great a competitive advantage in this market segment. Loans insured or guaranteed by FHA or by the U.S. Department of Veterans Affairs (VA) can be securitized with further guarantees from the Government National Mortgage Association (Ginnie Mae); these mortgage-backed securities (MBSs) have the full backing of the U.S. Treasury. Because of past actuarial losses and consequent changes in pricing and program provisions for FHA loans, the share of the origination market occupied by FHA/VA mortgages has declined since its mid-1980s peak. Changes that may further reduce the size of the FHA program are currently under consideration. Conventional mortgages have accounted for approximately 80% of total GSE mortgage purchases (Congressional Budget Office 1991). Given this historical and likely future emphasis, the analysis in this section examines the effect of privatization on ownership costs, affordability, and homeownership through projected impacts on the conventional mortgage market.

The GSEs' dominance of the conventional mortgage market is attributable to their size and to the "agency status" which lowers their capital costs. Lower capital costs are reflected in lower mortgage rates to potential borrowers than the market would otherwise require. Studies have generally estimated a disparity ranging from 25 to 35 basis points between fixed-rate loans with balances above and below the conforming loan limit, although a disparity of as much as 50 basis points has been observed (Hendershott and Shilling 1989, ICF, Inc., 1990, Cotterman and Pearce 1994).<sup>6</sup> The removal of "agency status" through full privatization is expected to eliminate this capital cost disparity.

The GSEs control lending risks through underwriting guidelines that have become industry standards. These guidelines and federal law require private mortgage insurance if borrowers do not provide at least a 20% downpayment. Also, at the time of loan origination, borrowers' housing payments (mortgage principal and interest payments, property taxes, and insurance) generally must not exceed 28% of their income. When combined with other obligations, such as credit card debt, these housing costs usually are not allowed to exceed 33% of income. These standards are relaxed

in a number of low- and moderate-income homeownership programs, which are discussed in Section II.4.

## II.2. Empirical Analysis of Effects of Privatization on the Conventional Mortgage Market

The 1989 American Housing Survey (AHS), national core, is used to perform the empirical analysis of the potential effects of privatization on the conventional mortgage market.<sup>7</sup> The possible effects that we examine in detail include the impact of full privatization on (1) homeownership costs, (2) mortgage affordability, and (3) homeownership rates. In particular, we analyze how regime shifts in costs and affordability resulting from full privatization may differentially impact ownership rates.

How such shifts will impact ownership will depend on whether we examine “now-own” versus “ever-own” rates. Recent movers and young households may take advantage of interest-rate induced lower costs by moving to homeownership when costs decline, without this affecting “ever-own” ownership rates, that is, the likelihood of owning a home over a lifetime. Similarly, initial responses of recent movers and young households to heightened affordability constraints may cause potential homebuyers to postpone ownership until savings can be adjusted, again without affecting the lifetime probability of becoming an owner (Engelhardt 1993; Haurin, Hendershott, and Wachter 1994). Thus, increased ownership costs and decreased affordability will diminish current ownership rates more than lifetime “ever-own” rates. Also, such shifts will be concentrated among the young and recent movers, although aggregate rates will decrease, both as a consequence of the decrease among these groups and as a consequence of lesser declines among other groups, as well.<sup>8</sup> In our homeownership models, we use several samples, including recent movers, young households, and a cross-section of all households to estimate these differential effects. For each, we analyze possible impacts for targeted socioeconomic groups and underserved areas: by race and low- and moderate-income borrower status, and by central-city location.

The analysis is replicated with baseline conditions and with interest costs and income and downpayment eligibility criteria expected to prevail if complete privatization were to occur. We use the 50-basis-point upper bound of empirical estimates of expected interest rate shifts (see above) to establish a possible range of impact. We also consider the possible effect of shifts in underwriting, attributable to full privatization, on downpayments.

Three scenarios are explicitly considered: (1) a 10% downpayment and a 10.12% mortgage interest rate<sup>9</sup> to reflect the prevailing baseline conditions in 1989; (2) a 10% downpayment and a 50-basis-point increase to a 10.62% mortgage interest rate attributable to the loss of capital cost advantage; and (3) a 50% downpayment increase to 15%, attributable to more rigid underwriting,<sup>10</sup> with a 10.12% baseline interest rate. We believe that a 50% increase in the amount of the downpayment could occur, if interest rates were to remain constant. For marginal households, effects (2) and (3) may hold.

**TABLE 1**

**Homeownership Costs: Change Pre- to Post-Privatization**

	Before Tax		After Tax	
	% Change	\$ Change	% Change	\$ Change
All	2.18	314.47	1.81	238.27
<b>Minority Status:</b>				
White	2.19	312.19	1.80	236.57
Black	2.17	308.29	1.87	245.19
<b>Central City:</b>				
Outside	2.19	325.38	1.82	246.43
Inside	2.16	290.21	1.79	221.73
<b>Low-to-Moderate Income:</b>				
No	2.19	330.19	1.80	246.55
Yes	2.09	216.61	1.89	190.34

**(A) Effects of Privatization on Homeownership Costs**

To examine the expected effects of privatization on homeownership, we proceed by first estimating homeownership costs. To do so we use, as our base case, costs for first-time homebuyers. We estimate the total and after-tax cost of homeownership before and after full GSE privatization.<sup>11</sup> The 1989 AHS is used in this analysis.<sup>12</sup>

Mortgage contract principal and interest payments, as well as other costs—such as property taxes, insurance, fuel, utilities, and maintenance, are included in the calculation. The prices of housing units purchased by first-time homebuyers in the 1989 AHS are used as the basis of the analysis. The after-tax cost is estimated as the mortgage payment and other costs less the tax savings associated with homeownership. Tax savings are based on the excess of housing deductions (mortgage interest and real estate taxes) plus non-housing deductions (assumed to be 3.5% of household income) over the standard deduction. The total cost of homeownership is assumed to be the after-tax cash cost plus the opportunity cost of the downpayment, amortization, loan fees, and closing costs, less expected equity buildup. Before- and after-tax homeownership costs are estimated by race, central-city status, and poverty status. The analysis is replicated using mortgage underwriting criteria expected to prevail given privatization.

The anticipated changes in homeownership costs are presented in Table 1. Not surprisingly, housing costs are expected to rise under complete GSE privatization, although these changes appear to be small. A 50-basis-point increase in the mortgage interest rate increases housing costs only by approximately 2% for all groups.<sup>13</sup> These results suggest only a marginal impact of privatization on



homeownership costs for first-time homebuyers, and, given the reduced importance of mortgage debt as households age, this impact is likely to be even less for non-first-time borrowers and for older households.<sup>14</sup>

### *(B) Effects of Privatization on Affordability*

Our second goal is to assess the effect of privatization on mortgage affordability. Theoretically, of course, there is some home—and, hence, a mortgage—within the means of any and every prospective homebuyer. What is needed for policy analysis, however, are “what-if” comparisons using some measure for capturing the coincidence, or lack thereof, between consumers’ “means” (lifetime incomes and current, liquid assets) and “desires” (housing needs and wants). Following Linneman and Wachter (1989), we employ a measure of (inverse) affordability—the estimated percentage of households constrained in their housing choice by affordability considerations—to see how the different scenarios for direct policy effects on interest rates and/or underwriting standards impact affordability, relative to the base case of otherwise prevailing conditions.

We identify an optimal home purchase price for each household and compare this to the underwriting standard amount that the household can afford to borrow.<sup>15</sup> To do so we use an estimating equation for optimal home purchase prices (i.e., prices of the houses unconstrained consumers choose given the alternatives in their local market) based on an empirical analysis of house prices relative to household demographic variables and market variables for a sample of unconstrained households. We then apply the resulting equation to calculate which households are constrained and unconstrained among the population. If the predicted optimal home purchase price is more than the maximum house price that households can purchase under the various underwriting criteria scenarios, households are considered constrained under the income, downpayment, or both requirements. Affordability constraint rates are estimated for targeted socioeconomic groups and geographic areas by race, central-city location, and poverty status. The analysis is replicated with the interest rate (10.62%) and downpayment requirement (15%) that may prevail if privatization were to occur. The percentage of families constrained under the three regimes are then compared.<sup>16</sup>

Estimated affordability rates under current and expected downpayment requirements are presented in Table 2.<sup>17</sup> As anticipated, higher proportions of minority and central-city households are capital constrained. Post-privatization, the percentage of capital-constrained households, for all households combined, increases by 2.7 percentage points, from 26.4% to 29.1%. In percentage terms, this 3-percentage-point (approximately 10%) increase in capital-constrained households varies only slightly across socioeconomic groups and geographic areas; for all groups, changes fall within 2.2 to 2.8 percentage points of initial levels.

Estimated affordability rates under current and expected income requirements are presented in Table 3. The percentages of households that are constrained by their current incomes are in all cases but one (low-to-moderate-income households) less than the corresponding estimated percentages of capital-constrained households in Table 2. As expected, in all cases, privatization increases the percentage of households that are income constrained. For all households combined, the percentage of income-constrained households increases from 18.3% to 19.8%. This 1.5-percentage-point



TABLE 2

**Affordability Effects of Downpayment Constraints:  
Pre- and Post-Privatization**

	Estimated Percentage of Households With Insufficient Capital To Purchase Optimum Home		Pre- to Post- Privatization Change	
	Pre-Privatization 10% down	Post-Privatization 15% down	Percentage Points	As Percent
All	26.4%	29.1%	2.7%	10%
Minority Status:				
White	25.5%	28.1%	2.6%	10%
Black	29.0%	31.2%	2.2%	8%
Central City:				
Outside	23.0%	25.5%	2.5%	11%
Inside	32.8%	35.5%	2.7%	8%
Low-to-Moderate Income:				
No	27.8%	30.6%	2.8%	10%
Yes	23.5%	25.7%	2.2%	9%

(8%) increase for all households encompasses effects ranging from 1.1 to 1.9 percentage points over the various groups.<sup>18</sup>

***(C) Effects of Privatization on Homeownership Rates***

The goal of this task is to assess the impact of privatization on homeownership rates. Homeownership rates can vary with differences in the cost of owning relative to renting, household income, and demographic variables. Privatization may affect homeownership rates through higher borrowing costs as well as changed income and downpayment requirements. We examine the decision to own a home by individual households to assess the way privatization would affect such a decision through each of the privatization scenarios.

Homeownership rates are estimated in two steps. First, we estimate a tenure choice equation using four groups of variables (described in detail in the Appendix): (1) income and wealth measured by the permanent income and transitory income components of income; (2) demographic lifecycle factors including age, family type, and household size and race; (3) relative cost of ownership measures—the own/price ratio which incorporates interest costs as discussed above, the value/rent

TABLE 3

Affordability Effects of Income Constraints:  
Pre- and Post-Privatization

	Estimated Percentage of Households With Insufficient Capital To Purchase Optimum Home		Pre- to Post- Privatization Change	
	Pre-Privatization 10.12% Rate	Post-Privatization 10.62% Rate	Percentage Points	As Percent
All	18.3%	19.8%	1.5%	8%
<b>Minority Status:</b>				
White	18.3%	20.0%	1.7%	9%
Black	14.3%	15.4%	1.1%	8%
<b>Central City:</b>				
Outside	18.2%	19.9%	1.7%	9%
Inside	18.2%	19.7%	1.5%	8%
<b>Low-to-Moderate Income:</b>				
No	8.6%	10.1%	1.5%	17%
Yes	40.1%	42.0%	1.9%	5%

ratio which measures expected price appreciation, and location variables; and (4) income and downpayment constraint measures.<sup>19</sup> Second, using the first-step results, we estimate the predicted probabilities of homeownership and calculate homeownership rates for selected socioeconomic groups and geographic locations under current and expected conditions. (Variable definitions, sample statistics, and results of the tenure logit estimations are presented in Appendix tables. Generally, the results conform to those found in other studies of tenure choice.)<sup>20</sup>

Using these estimates, we calculate predicted homeownership probabilities for selected socioeconomic groups and geographic locations under current and expected conditions. We do this under two scenarios: A, in which interest rates increase by 50 basis points, and B, in which the standard downpayment increases by 5 percentage points.<sup>21</sup>

Tables 4 through 6 report results for the full, recent-movers, and young samples (24 to 29 years of age), respectively. In each case, ownership rates are reported for all households and for groups, by race and by income. Under scenarios A and B, all effects on ownership rates are as anticipated. Generally, the largest impacts derive from shifts in ownership costs (shown as the own/rent price effect) and capital constraints. Overall impacts for recent movers and for young

households are far larger than those for the full sample, as anticipated. For majority, high-income, and all households, using the full sample, measured effects of privatization on ownership rates appear to be small. However, for black and lower income households, in both scenarios A and B, effects are far larger. We find, in particular, own/rent price (ownership costs) effects for minority households and for low-income households are large, reflecting the greater magnitude of mean partial derivatives (and lower base relative ownership costs) for these households, as shown in logit results and sample statistics (which include means used to convert logit coefficient estimates into partial derivatives), provided in the Appendix.

#### *(D) Effects of Privatization on Central Cities*

Under the 1992 GSE legislation, the Secretary of HUD must define “underserved” markets in order to formulate permanent mandates for lending to such areas, by 1995. In the absence of this definition, we focus on measuring the simulated effects of scenarios A and B on predicted homeownership rates in central-city locations. As reported in Table 7, homeownership rates in central-city markets lag behind rates in other areas, among all households, recent movers, and young households: in all these samples, central-city ownership rates are significantly lower than those outside central cities. Moreover, in four of these cases, full privatization lowers homeownership rates in central cities more than in areas outside of central cities. For recent-mover and young household simulations, projected homeownership rates in central cities decline more than elsewhere in scenario A but not in scenario B—here higher priced houses outside central cities are responsible for a larger negative downpayment effect.

### **II.3. The GSEs’ Low-Income Homeownership Programs**

The GSEs’ promotion of low- and moderate-income homeownership has increased over time. In particular, their importance has grown since the passage of the 1992 Housing and Community Development Act. Since 1992 the GSEs are required to meet annual targets for affordable housing. Specifically, the 1994 goals require that 30% of the dwelling units financed by mortgages purchased by the GSEs have to be occupied by low- or moderate-income households, and 30% of the units financed have to be secured by properties in central cities (Canner, Passmore, and Smith 1994).

The GSEs, in cooperation with housing providers, offer a number of low- and moderate-income homeownership initiatives. Fannie Mae offers the Community Home Buyer’s Program, the Community Second Mortgage Loans, the Lease Purchase Mortgage Loans, and the Community Land Trust Mortgage Loans. Fannie Mae is active in HUD’s Home Equity Conversion Mortgage Program (HECM).

Freddie Mac also offers a number of similar programs. These include the Affordable Gold, the 2- to 4-Unit Properties Pilot, and the Home Works First Time Home Buyer Programs. The corporation also supports several public/private initiatives in a number of states, namely Connecticut, Georgia, Kansas, Massachusetts, Michigan, Missouri, New York, and North Carolina. Freddie Mac has also committed to purchase loans originated under FHA’s 203(k) Rehabilitation Mortgage Program.

**TABLE 4**  
**Homeownership Rate Effects Simulation**  
**Based on Full Sample Means and Models**

	Post-Privatization—A				Post-Privatization—B			
	10% Down		10.62% Rate		15% Down		10.12% Rate	
	(i)	(ii)	Pre- to Post-Privatization Change	As Percent	Pre- to Post-Privatization Change	As Percent	As Percent	
Pre-Privatization: 10% Down 10.12% Rate	Own/Rent Price Effect	Income Constraint Effect	Combined Effect	Percentage Points	Capital Constraint Effect	Percentage Points	As Percent	As Percent
<b>All</b>	63.56%	62.55%	63.44%	62.42%	-1.14%	-1.80%	-1.29%	-2.02%
<b>Minority Status:</b>								
<b>White</b>	66.80%	65.75%	66.66%	65.60%	-1.20%	-1.80%	-1.33%	-1.99%
<b>Black</b>	43.89%	41.20%	43.74%	41.06%	-2.83%	-6.46%	-2.15%	-4.89%
<b>Low-to-Moderate Income:</b>								
<b>No</b>	71.18%	70.52%	71.70%	70.44%	-0.74%	-1.04%	-0.76%	-1.07%
<b>Yes</b>	45.73%	43.35%	45.45%	43.07%	-2.66%	-5.81%	-2.47%	-5.40%

(Owner-occupied households as a percentage of total households)



**TABLE 5**  
**Homeownership Rate Effects Simulation**  
**Based on Mover Sample Means and Models**

	Pre-Privatization: 10% Down 10.12% Rate	Post-Privatization—A				Post-Privatization—B			
		10% Down 10.62% Rate		Pre- to Post-Privatization Change		15% Down 10.12% Rate		Pre- to Post-Privatization Change	
		(i)	(ii)	Income Constraint Effect	Combined Effect	Percentage Points	As Percent	Capital Constraint Effect	Percentage Points
<b>All</b>	34.51%	31.97%	34.17%	31.65%	-2.86%	-8.30%	29.60%	-4.91%	-14.21%
<b>Minority Status:</b>									
<b>White</b>	37.64%	34.52%	37.08%	34.16%	-3.30%	8.81%	32.39%	-5.07%	-13.53%
<b>Black</b>	16.52%	14.97%	16.34%	14.81%	-1.71%	-13.70%	14.89%	-1.63%	9.85%
<b>Low- to- Moderate Income:</b>									
<b>No</b>	44.20%	41.52%	43.81%	41.14%	-3.06%	-6.93%	39.22%	-4.98%	11.27%
<b>Yes</b>	14.77%	13.37%	14.66%	13.27%	-1.50%	-10.12%	12.96%	-2.08%	-14.06%

(Owner-occupied households as a percentage of total households)

**TABLE 6**  
**Homeownership Rate Effects Simulation**  
**Based on Young Households Sample Means and Models**

	Post-Privatization—A				Post-Privatization—B				
	10% Down		10.62% Rate		15% Down		10.12% Rate		
	(i)	(ii)	Pre- to Post-Privatization Change		Pre- to Post-Privatization Change		Pre- to Post-Privatization Change		
<b>Pre-Privatization:</b>									
10% Down									
10.12% Rate									
	Own/Rent Price Effect	Income Constraint Effect	Combined Effect	Percentage Points	AS Percent	Capital Constraint Effect	Percentage Points	AS Percent	
<b>All</b>	30.73%	33.17%	30.22%	-3.50%	-10.38%	27.06%	-6.66%	-19.76%	
<b>Minority Status:</b>									
<b>White</b>	33.33%	36.42%	32.76%	-4.28%	-11.57%	29.93%	-7.11%	-19.20%	
<b>Black</b>	10.88%	11.94%	10.32%	-2.27%	-18.05%	10.35%	-2.24%	-17.78%	
<b>Low-to-Moderate Income:</b>									
<b>No</b>	37.20%	39.63%	36.49%	-3.88%	-9.61%	33.36%	-7.01%	-17.36%	
<b>Yes</b>	15.72%	17.21%	15.42%	-2.13%	-12.13%	14.12%	-3.43%	-19.53%	

(Owner-occupied households as a percentage of total households)

**TABLE 7**

**Homeownership Rate Effects Simulations  
For Central City and All Households**

	Pre-Privatization: 10% Down 10.12% Rate		Post-Privatization—A 10% Down 10.62% Rate			Post-Privatization—B 15% Down 10.12% Rate		
	(i) Own/Rent Price Effect	(ii) Income Constraint Effect	Combined Effect	Pre- to Post-Privatization Change Percentage Points	As Percent	Capital Constraint Effect	Pre- to Post-Privatization Change Percentage Points	As Percent
<b>(A) Simulation Based on Full-Sample Means and Models</b>								
All	63.56%	62.55%	63.44%	62.42%	-1.14%	-1.80%	62.27%	-1.29%
Central City	49.77%	47.55%	49.50%	47.28%	-2.49%	-5.01%	47.40%	-2.37%
<b>(B) Simulation Based on Mover-Sample Means and Models</b>								
All	34.51%	31.97%	34.17%	31.65%	-2.86%	-8.30%	29.60%	-4.91%
Central City	23.85%	21.91%	23.52%	21.60%	-2.25%	-9.41%	20.64%	-3.21%
<b>(C) Simulation Based on Young Households Sample Means and Models</b>								
All	33.72%	30.73%	33.17%	30.22%	-3.50%	-10.38%	27.06%	-6.66%
Central City	23.77%	21.09%	23.23%	20.61%	-3.16%	-13.30%	19.28%	-4.49%

(Owner-occupied households as a percentage of total households)

The GSEs' low- and moderate-income homeownership initiatives have several characteristics in common. Borrowers can obtain financing with loan-to-value ratios up to 95%, and even higher under certain circumstances. Borrowers can put as little as 3% of their loan from personal resources towards a downpayment, plus 2% or more in the form of a gift from a family member, a grant, or an unsecured loan from a nonprofit organization or public entity. Similarly, closing costs can be funded with gifts, grants, or unsecured loans. Borrowers can also use nontraditional methods to demonstrate creditworthiness, such as providing evidence of regular payments to utility companies and current and previous landlords. In most cases, prospective buyers are required to participate in a homebuyer counseling program.

Consistent with legislative requirements, the GSEs' programs are available to low- and moderate-income households. In general, eligible borrowers must have incomes at or below 115% of area median income. Borrowers in some Freddie Mac programs can have incomes up to 120% of area median income. Borrowers in some Fannie Mae programs have the income limit waived if they live in central cities, or in census tracts outside central cities with high concentrations of low- and moderate-income and minority households. The GSEs' programs allow borrowers to use up to 33% (versus 28%) of their gross income for housing expenses (principal, interest, taxes, and insurance). Housing costs and other obligations, such as credit card debt, must not exceed 38% (versus 33%) of gross monthly income (42% in some cases).

#### *(A) Coverage*

Despite the number of initiatives begun, the total funding for these programs is currently small as percentage of overall activity. (In 1993, Fannie Mae purchased loans totaling \$5 billion under these programs [Annual Report, 1993].) However, secondary market activity targeted to lower income and central-city markets is substantial, separate from these specialized programs. To gauge the potential impact of this activity, it is useful to consider its distribution relative to the overall market. A study by Canner, Passmore, and Smith (1994) puts GSE loan purchase activity into perspective for loans extended to low-to-moderate-income families and to families residing in central cities relative to the overall market. Using 1992 Home Mortgage Disclosure Act (HMDA) data (which are publicly available but do not provide ideal coverage), they find that only 24% of loans purchased by Fannie Mae and Freddie Mac were extended to lower income borrowers, whereas 27% of loans made in the primary market were made to such borrowers. Similar results were found for central-city loan purchases.

These figures are consistent with analysis done by HUD on the topic. Fannie Mae's data for 1993 show that 31.8% of single-family dwellings, 95.4% of multifamily units, and 35.6% of total units financed by its mortgage purchases were affordable to low- and moderate-income families. The comparable figures for Freddie Mac are 28.9%, 94.3%, and 29.2% respectively (HUD 1995, Appendix A, p. 9206). HUD's study, however, shows only 15.9% and 14.4% of Fannie Mae's and Freddie Mac's 1993 business to be in underserved areas. According to 1993 HMDA data, 13.1% of Fannie Mae's single-family business was in underserved areas. The comparable figure for Freddie Mac was 13.6% (HUD 1995, Appendix B, p. 9230). These figures are not equivalent to those of Canner et al.



(1994), because the latter presents the data by central-city/non-central-city location, which is not identical to the definition of underserved areas.

Why is GSE activity in targeted areas not higher? One explanation may be that loans in these locations, to be affordable may carry higher loan-to-value ratios, which increases their risk. The clear relationship between high loan-to-value ratios and high rates of default is shown by the GSEs' own data (Fannie Mae 1993; Freddie Mac 1993).<sup>22</sup> Nonetheless, it is possible that these riskier loans may be purchased at rates that allow higher returns. Beyond a certain point, however, purchase of these loans would be likely to drive up their prices, so that they add to losses. Moreover, private conduits that specialize in underwriting and securitizing these loans may be better able to price their risk, thus contributing to a reduced presence of the GSEs in these higher risk areas.<sup>23</sup>

Beyond profit maximization motives, the GSEs purchase high loan-to-value loans in low-to-moderate-income areas as part of their affordable lending initiatives to satisfy congressional mandates and, more broadly, to fulfill their charters. It is also possible, although untested, that increased liquidity provided through current and future affordable lending initiatives may reverse neighborhood disinvestment and make such loans less risky than in the past. The GSEs have the potential and motivation to test for whether increased neighborhood reinvestment can result from an increased supply of lending.

### ***(B) Impacts of Future Activity***

The GSEs' involvement in the promotion and support of low- and moderate-income homeownership is expected to increase in the future. This is because final legislative requirements went into effect in 1995, and their impacts will take some time to work through the system (Canner, Passmore, and Smith 1994). Also, in absolute dollars, this involvement is expected to increase over time because the legislative requirements are expressed as a percentage of the GSEs' overall operations.<sup>24</sup> Finally, the GSEs may learn from the initiatives that they have put into place; the "natural experimentation" these programs allow, if followed by evaluation, may indicate how or whether such activity can be expanded without increasing the risk of lending.

## **II.4. Would Existing or New Government Programs Be Able To Substitute for GSEs?**

The complete privatization of the GSEs may have significant impacts on low-to-moderate income homeownership. Fully privatized GSEs would likely reduce their involvement in special programs, because the legislative mandates to be active in this area, imposed by virtue of federal charters, would be gone. Most importantly, empirical results indicate that central-city, low-to-moderate-income, and minority households' ownership rates would decrease, if the GSEs were to be fully privatized.

Government could expand existing programs or undertake new initiatives to compensate for any resulting decreases in homeownership rates for these groups. However, such programs would have costs, and their success in compensating for losses in ownership is by no means assured in all

cases. One method that could clearly counterbalance any loss in homeownership would be direct subsidies of fully privatized entities targeted to affordable lending. To compensate for declines in homeownership, the federal government could subsidize future affordable housing initiatives undertaken by the fully privatized GSEs, providing bounties for such lending. Because no funds are currently budgeted for the GSEs, new federal funds would have to be appropriated. In the current budgetary climate, Washington is unlikely to come up with the additional funding necessary to compensate for the GSEs' reduced involvement.

The alternative of expanding existing government activity in this area is also possible. Ginnie Mae and FHA mortgage lending insurance programs, currently housed in HUD, are the closest government substitutes to GSEs. However, these programs' share of primary and secondary market activities, respectively, have declined over the past decade. Due to past actuarial losses, FHA pricing has increased. These programs are unlikely to be increased in size and scope to compensate for reduced GSE activity.

Finally, the federal government could require privatized entities to maintain or expand the level of affordable housing activity that GSEs now provide. It cannot be assumed, however, that regulation of fully privatized GSEs to increase lending to targeted populations would achieve funding levels equal to those prevailing today. Requiring explicit minimum purchases of loans from targeted populations as a percentage of overall activity may result in decreased secondary market activity, as fees increase to compensate for increased costs. While the share of secondary market purchases of loans to targeted populations would increase, the overall level of such funding might decrease. Costs may rise if higher risk loans are purchased to meet regulatory obligations. Administrative costs of adhering to regulation may also result in cost increases, passed on to potential borrowers in the form of higher fees. Also, restructuring of GSEs into smaller entities may itself increase insurance costs, through the loss of economies of scale. Finally, for ease of monitoring, regulations would have to be uniform and this would lead to a loss of any efficiencies that otherwise might be achieved through specialization.<sup>25</sup> The efficiency losses in the form of higher costs that such a policy entails would make it an unlikely substitute for GSE mandates.

## **II.5. Conclusions and Policy Implications for Privatization Based Upon Consideration of Single-Family Mortgages**

Our analysis of the impact of privatization of the GSEs on the market for owner-occupied housing assumes that interest rates will rise by 50 basis points and that underwriting criteria will tighten. We believe that these assumptions probably err on the side of overstating the likely effects; however, even these magnitudes yield modest overall market impacts. Housing costs rise by less than 3% and the aggregate homeownership rate declines by less than 1 or 2 percentage points (ever-own probably much less). However, the impact of privatization falls disproportionately across the population. In particular, blacks, residents of central cities, and low- and moderate-income households would be affected more adversely than the general population. Reductions of 10% or more in the homeownership rates among some of these groups are possible.

An interesting question is whether existing federal housing programs would be able to fill the gap left by privatization of the GSEs. Given the results of our analysis, this amounts to knowing whether federal programs would be able to offset all or most of the negative impacts likely to be experienced by minorities, residents of central cities, and low- and moderate-income households.

We believe such programs are incapable of effectively filling the gap for several reasons. First, the fiscal situation seems too severe to permit the enlargement of any existing subsidy programs or the implementation of new subsidy programs. Recall that the subsidy to the GSEs is implicit; no direct financial savings from privatization would result. Second, GSE loan subsidy and guarantee programs are likely to be more operationally efficient than those operated by the federal government. Simply put, the GSEs face a stricter and clearer set of incentives to be efficiently subsidized and to innovate in these markets to accomplish social goals than does the federal government. So even if the funds could be obtained to expand some existing federal programs, we believe that they would likely be less efficiently delivered to beneficiaries than via the GSEs. Finally, regulation to increase social lending may not have the intended outcomes in a fully privatized framework. Interest rate rises, which are likely to result from full privatization and more stringent regulation, will reduce homeownership rates precisely for the groups targeted for increased access to homeownership.

It must be kept in mind that estimates of the impact of privatization are not precise. Nonetheless, our analysis suggests that social policies to enhance homeownership opportunity would suffer if the GSEs are privatized. Especially hard hit would be low- and moderate-income households seeking to become homeowners for the first time. Therefore, *if the impact of privatization on existing social policies is a major criterion in any ultimate decision to privatize the GSEs and if the commitment to these goals remains unchanged, we come down on the side of the status quo or some relatively minor variations to it.*

Thus, in carrying out policy responsibilities associated with federal charters, the GSEs can be viewed as privatized targeted welfare deliverers. We view the affordable housing mandates incorporated into the federal GSE charters as representing one of many potential tools available to the federal government to accomplish its social goals regarding homeownership opportunity. Many other tools also exist and include direct interest subsidies, FHA mortgage insurance, Ginnie Mae, and others. The manner in which the mandates are imposed can be adjusted; for example, the GSEs could be required to offer loans to targeted groups at a reduced rate rather than the current policy of establishing goals as fractions of their total business. Efficient social policy calls for the use of the most efficient tool with which to attain the policy goal. Our sense is that a shift in policy toward the greater use of affordable housing mandates imposed on the GSEs will probably improve the overall efficiency of social policy in this area. We begin the defense of this argument with a list of the key assumptions and conclude with some specific recommendations that follow from it.



### *(A) Key Assumptions*

First, the existing “agency” status enjoyed by the GSEs does grant a subsidy to the mortgage market; the size of this subsidy is estimated to be between 20 and 50 basis points. Second, the subsidy is shared among mortgage borrowers and GSE employees and stockholders. Although it is quite difficult to identify the exact allocation of this subsidy, some of the subsidy surely accrues to GSE stakeholders. Weicher (1994) makes this point as well. Third, bringing about privatization may be a long and difficult process according to Stanton (1996). Stockholders are likely to resist such a move and may be in a position to insist upon some type of payment from the federal government to bring it about. Fourth, the GSEs are very successful organizations that have played major roles in the continued improvement in the efficiency of the mortgage markets. They have made securitization the dominant and low-cost producer of funds for the financing of single-family housing. Fifth, the federal government has no explicit obligation to cover the losses of the GSEs. Finally, social goals regarding the desirability of homeownership and of equal access to mortgage markets by all households remain unchanged.

If one accepts these assumptions, then maintaining or increasing the social responsibilities of the GSEs may be the most cost efficient way of implementing the overall housing objectives of the federal government. There are many ways in which implementing the social responsibilities of the GSEs may be accomplished. One example involves maintaining or increasing the affordable housing goals for the GSEs. Alternatively, the GSEs could be required to subsidize mortgage rates for certain targeted groups and programs. In essence, they would be asked to cross-subsidize loans explicitly for these groups. Either of these approaches would produce less privatized or more public GSEs.

This approach also seems to address one of the problems raised by Stanton (1996), who argues that the GSEs are unlikely to accept privatization without substantial compensation and that the process leading to privatization is likely to be complex and long. An alternative approach to privatization involves an increase in the mandates. By increasing the affordable housing mandates assigned to the GSEs, the federal government reduces the portion of the subsidy implicit in the GSE charters that can be diverted to GSE employees and stockholders. Increased mandates could also be seen as an additional tax upon the GSEs. Regardless of the characterization, the mandates make the federal charter less valuable to the stockholders and make privatization more attractive to GSE stockholders.

The argument just presented can be criticized on several fronts. We address two that strike us as particularly important and worthy of more study. First, hard evidence to support our assumption regarding the efficiency of the GSEs relative to existing housing programs is scarce; therefore, transferring responsibility to them may achieve little in the way of efficiency gains. Furthermore and more importantly, the historical success of the GSEs in innovating does not mean that they can be as successful in the future.

Another criticism of our argument comes from those who prefer that the implicit costs associated with a policy of mandates be made explicit and brought directly into the federal budget



process. As one reviewer put it, “the paper condones putting programs off-budget so that the federal government can create social benefits without directly assuming the costs of providing them.” We think this is a misreading of our recommendation. Surely we would prefer a plan in which the implicit subsidy provided to the GSEs is made explicit and brought into the federal budget process. Our sense is that this is very difficult to do, especially since the federal government has no explicit obligation to the GSEs, according to our understanding. Efforts to recapture benefits associated with the implicit guarantee in the past by taxing the GSEs through guarantee fees have failed; perhaps the implicit guarantee ought to be made more specific and the idea of a guarantee fee should be resurrected. Subsidies, whether funded by GSE fees or other sources, could be used as vouchers to encourage homeownership for marginally qualified households in designated areas. However, the alternative of explicit government-administered subsidies to which qualified households would be entitled does not appear to us to provide as efficient an incentive to innovate and experiment. Absent the approach of explicit subsidies and fees, GSE mandates and goals are ways of recovering some of the benefits bestowed on the GSEs. If the costs of these mandates become too onerous, the GSEs will surrender their federal charters.

### *(B) Recommendations*

Thus, despite criticisms, we believe our argument is worthy of serious consideration, and several specific policy recommendations follow from it. First, as is currently planned, a higher portion of GSE business can be targeted to serve households deemed to be in need of special help; these include minorities and lower income households. As noted above, this can be accomplished by increasing housing affordability goals or requiring the explicit cross-subsidization of loans to targeted groups and programs. Second, if the role of FHA is reduced, some of the responsibilities could be assigned to the GSEs. Third, the GSEs could be required to conduct demonstration programs to examine the wisdom of various affordable lending initiatives and nontraditional underwriting criteria and processes. Plans for this, which are underway, could be expanded and accelerated.

Reallocating responsibility for social housing goals in favor of the GSEs will reap some benefits. The overall housing finance delivery system will become less public and more efficient and linked to capital markets; homeownership opportunity should improve, especially for targeted groups. Nonetheless, the shift will not solve all problems faced by households seeking to become homeowners. The main obstacle facing prospective homebuyers is insufficient income and, perhaps, most importantly, wealth. Neither will the shift be accomplished at zero cost; some resources must be devoted to the monitoring of GSE activity to ensure that they do achieve the assigned mandates.

## **III. THE ROLE OF THE GSEs IN MULTIFAMILY HOUSING MARKETS**

Two questions are central to this section. First, how would the privatization of the GSEs affect the availability and affordability of mortgage credit for multifamily housing? Second, if the GSEs are privatized, how would the federal government attain its goals in the area of multifamily housing finance? The following sections provide answers to these questions and recommendations regarding the privatization of the GSEs.<sup>26</sup>

### III.1. Comparison of GSE and FHA Multifamily Finance Programs

The purpose of this section is to provide background regarding the existing multifamily programs of the GSEs and their future plans in multifamily housing. In a few instances, comparisons are made to the multifamily programs of FHA, which is the closest government substitute for the GSE programs. The discussion is not intended to provide indepth information about the programs; only a few of the most relevant characteristics are covered.

#### *(A) Size*

The current dollar volume of multifamily programs is small in comparison to single-family programs. For example, multifamily loan purchases by the GSEs represented about 3.6% of their total loans purchased in 1993, while most loans purchased were single-family mortgages. Multifamily loans represented about 6% of Fannie Mae's portfolio of mortgages. Only 1.7% of MBSs issued in 1993 were backed by multifamily loans. Multifamily MBSs issued by Fannie Mae were a higher but still low percentage of business in 1988; at that time about 3% of its total securities outstanding were in multifamily MBSs.

More generally, the GSEs play a smaller role in the financing of multifamily housing than they do in the financing of single-family housing. Multifamily mortgage originations in 1993 totaled about \$31 billion; GSE purchases of multifamily loans were less than \$5 billion, most of which were purchased by Fannie Mae. In contrast, GSE purchases of single-family mortgages were about 59% of single-family originations in 1993.

The small size of the multifamily programs relative to the single-family programs is important to note; however, the comparison probably understates the importance of multifamily programs in a discussion of social goals of the GSEs for a few reasons. First, the current size no doubt reflects the fact that securitization of multifamily mortgages is not nearly as advanced as that of single-family mortgages; in particular, the multifamily mortgage is less standardized and, as a consequence, more difficult to securitize. As these mortgages become more standardized, the size of the multifamily MBS market will probably increase. Second, multifamily construction activity and mortgage originations are at a relatively low level, as they have been since the multifamily building boom of the mid to late 1980s. Although a return to the level of activity in multifamily housing of the early and mid-1980s is still probably several years off, larger volumes of multifamily lending will surely return. Finally, because multifamily housing tends to be less expensive and more likely to serve low- and moderate-income households, multifamily housing will likely continue to play a relatively larger role in the achievement of the GSE affordability goals.

#### *(B) Coverage*

An important element in the discussion of privatization is the overlap among multifamily programs of the GSEs and those of FHA. An examination of overlap of the various programs is conducted to identify its extent. Although a discussion of coverage could include a review of a

TABLE 8

## Distribution of Multifamily Purchases, 1993

Tenant Income as a Percentage of Median Income of Metropolitan Area	Fannie Mae	Freddie Mac
	(Housing Units)	
< 50%	28,217	8,232
50-60	51,088	12,845
60-80	80,159	32,188
80-100	15,228	20,912
>100 & Missing	11,780	29,055
<b>Total</b>	<b>186,472</b>	<b>103,232</b>
	(Percent Distributions)	
< 50%	15.13%	7.97%
50-60	27.40%	12.44%
60-80	42.99%	31.18%
80-100	8.17%	20.26%
>100 & Missing	6.32%	28.15%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>

Source: Reports on Interim Goals by Fannie Mae and Freddie Mac,  
March 1, 1994

variety of criteria such as geography, racial composition, and loan-to-value ratio, the following discussion focuses on the income of the tenants in the program.<sup>27</sup>

The first set of comparisons examines the distribution of the two GSEs' purchases of multifamily mortgages during 1993 by the income of the tenants (Table 8). The distribution is presented in terms of the number of individual housing units underlying the mortgages. For example, purchases by Fannie Mae provided financing for 28,217 housing units in which the tenant incomes were typically at or below 50% of the median income in the metropolitan area. The main story told by these numbers is that the bulk of the GSE activity takes place between 60% and 80% of median income. Forty-three percent of Fannie Mae's business and 31% of Freddie Mac's 1993 business took place in this range. In addition, Fannie Mae's programs generally go more deeply into the income distribution, although only 15% of its units are below 50% of median, which is one of the definitions

TABLE 9

## Distribution of FHA Insured Multifamily Business As of 1990-91

Tenant Income as a Percentage of Median Income of Metropolitan Area	Unassisted	Older Assisted	Newer Assisted	Total
(Thousands of Units)				
< 50%	678	4,648	3,739	9,065
50-80%	1,140	1,026	332	2,498
Others	1,263	363	83	1,708
<b>Total</b>	<b>3,080</b>	<b>6,037</b>	<b>4,154</b>	<b>13,271</b>
(Percent Distributions)				
< 50%	22%	77%	90%	68.30%
50-80%	37%	17%	8%	18.82%
Others	41%	6%	2%	12.87%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100.00%</b>

Source: Wallace (1994), pp. 8-9.

of "very low-income" households. We have no information from earlier years with which to compare the 1993 distribution.

A comparison of these data to those for FHA provides several additional insights about the relative coverage of GSE loans as well as the variation among FHA programs. Wallace (1994) is the source of the information in Table 9, which is based upon a survey conducted in 1990-91 of a sample of FHA multifamily properties. The data represent the distribution of tenant incomes among all properties insured by FHA multifamily programs; these represent loans insured over the past 30 or 40 years. They are distributed among three categories: unassisted, older assisted, and newly assisted. Wallace presents this distribution to highlight several important differences. First, FHA-assisted programs focus on serving households below 50% of median income; 68.3% of FHA-insured multifamily loans serve this group. Second, the unassisted FHA loans are distributed much differently; only 22% are distributed to very low-income households. The results suggest that FHA programs that provide some sort of special subsidy to the project or its tenants go much deeper into the income distribution than the GSE programs. On the other hand, the unassisted FHA programs appear to be quite similar to the GSE programs.<sup>28</sup>



TABLE 10

## Fannie Mae Multifamily Delinquencies

End of Year	Total Unpaid Balance (\$ Millions)	Number of Loans	UPB Serious Delinquencies (\$ Millions)	Delinquency Rate (%)
1990	7,457	39	127	1.7
1991	9,015	70	327	3.62
1992	10,867	82	288	2.65
1993	12,570	90	294	2.34
1994	13,368	78	237	1.77

Source: Fannie Mae Investor/Analyst Reports

**(C) Default Experience**

Calculation of the economic value of the various multifamily programs is well beyond the scope of this paper; however, insights about their relative performance can be obtained by examining information about losses, defaults, and other proxies of the financial performance of the programs. Consider, first, information available about serious delinquencies for the Fannie Mae multifamily portfolio. Although this is a relatively crude proxy because it reveals little about the source of the problems and nothing about the appropriateness of the guarantee fees associated with this business, the information is consistent with a widely held belief: Fannie Mae's multifamily programs have experienced the least costly problems among the three programs under review.

Table 10 presents the number of delinquent loans (60 or more days delinquent), the unpaid balance (UPB) represented by these delinquent loans, and the ratio of the UPB of the delinquencies to the UPB of loans serviced by Fannie Mae. The delinquency rate at the end of June 1994 was 1.77%, which is about the level at the end of 1990. Both are well below the highest rate of 3.62%, which was recorded at the end of 1991. Higher delinquency rates existed in certain regions: rates as high as 5.5% were experienced in the Northeast, Southwest, and Midwest, while delinquency rates in some regions fall below 1%.

We did not have the opportunity to review similar information about Freddie Mac's multifamily portfolio, but other available information paints a picture of its multifamily default experiences. Through the early part of 1989, Freddie Mac's multifamily program showed few signs of trouble. Defaults were infrequent and consistent with expectations. This situation changed in 1989 and ultimately led Freddie Mac to discontinue its multifamily programs until 1993. During this period losses from multifamily programs comprised more than half of total losses from all programs, even though multifamily programs constituted a very small portion of its overall business. Efforts to

explain the causes of the problems and to correct them have been underway within Freddie Mac since 1989. It now appears that the problems stemmed in large part from loans in Atlanta and New York; furthermore, it appears that the losses associated with these problem loans far exceeded previous experience. In some cases, the recovery rates were near zero.

More information is publicly available about the recent dismal performance of FHA's multi-family housing programs than about any other issues under discussion. Two sources of information are particularly insightful. One is the Coopers and Lybrand 1993 study, which reported the market value of the FHA multifamily portfolio at about -\$11 billion and recovery rates often less than 25 cents on the dollar. The most detailed analysis of the FHA problems is the Wallace study, which measures the financial distress of FHA's multifamily portfolio. Wallace calculates that 24% of all FHA properties are distressed, and that the rate for older assisted properties is 31%. It would cost more than \$1 billion to provide the repairs needed to eliminate his definition of distress.

#### *(D) Future plans*

The most important development is the beginning of new risk-sharing arrangements between FHA and the GSEs.<sup>29</sup> Both GSEs affirm their intention to remain in the business of multifamily debt finance. Fannie Mae has committed to provide \$50 billion by the close of the decade—a substantial sum. However, this funding leaves Fannie Mae's relative commitment to multifamily programs at about the same level as today. We have found no information indicating the exact financial commitment Freddie Mac will provide. We are only aware of a pledge by the chairman of the Freddie Mac board, Leland Brendsel, for programmatic improvements over time.<sup>30</sup>

#### *(E) Conclusions*

Although the evidence available for a systematic comparison of the various multifamily programs is sketchy, several conclusions emerge from a review of the evidence available. Though Fannie Mae has not escaped unscathed, its risk-sharing and delegated underwriting programs and underwriting criteria seem to have been the most effective in controlling its defaults. Second, Freddie Mac's return to the business has been marked by conservative steps, particularly an emphasis on active involvement in the underwriting process. Third, FHA's experiments with risk sharing and delegated underwriting and its coinsurance programs of the mid-1980s have been much more costly than those of the GSEs. Now, FHA has lost its capacity to do much of the underwriting itself. Fourth, judging by recent and past experience, multifamily lending appears to be considerably more risky than single-family lending. For example, comparable numbers to those in Table 10 for Fannie Mae's single-family lending program indicate serious delinquency rates in the vicinity of one-half of 1%, on average. No region has registered average delinquency rates in excess of 1% during the past year. Whether this discrepancy is due to the difficulty of appraising and monitoring multifamily properties, unrealistic underwriting criteria, or cyclical factors is difficult to determine. Lastly, more research about the keys to the successful financial performances of multifamily programs is needed. In particular, we need to know more about the designs of successful risk-sharing and delegated underwriting systems. Such information would reduce the riskiness inherent in multifamily lending and, ultimately, improve the availability of credit to this sector of the economy.

### III.2. What Will Be the Impact of Privatization on the Cost and Availability of Mortgage Credit for Multifamily Housing?

The GSEs offer multifamily finance programs for two basic reasons. First, they may generate profits for their shareholders. Second, they fulfill either explicit or implicit mandates associated with the GSEs' special status as federally chartered, government-sponsored credit agencies.

Consider first the profitability of multifamily lending programs to the GSEs. Profits are generated primarily by guarantee fees, minus losses due to default and the administrative expenses associated with underwriting, monitoring performance, and foreclosure. Their principal competition in the multifamily lending market are institutions that originate and hold mortgages in their own portfolios, including commercial banks, thrifts, and insurance companies. Mortgage and investment bankers who are able to securitize private-label pools of mortgages also compete with GSEs.

As in the single-family mortgage market, the GSEs' principal advantage is the lower cost of financing associated with their federal charters. However, they also face some disadvantages. Multifamily lenders who are particularly knowledgeable about the rental housing market in which the property is located and the specific parties involved in the small business represented by the property have an important informational advantage. Such mortgage originators tend to be located in the area or at least have expertise in the local market. This is in contrast to our understanding of the traditional multifamily operations of the GSEs; they rely instead and primarily upon the mortgage originator. To the extent that the GSEs do not currently possess such information suggests that they seem to be at a competitive disadvantage relative to those who specialize in particular rental housing markets, as many banks, insurance companies, and thrifts do. This does not mean that the GSEs cannot invest in the information systems and personnel needed to compete with local originators; indeed, Freddie Mac seems to have moved in this direction in its revived multifamily lending program. In sum, the fact that most multifamily mortgages are not securitized and that most multifamily debt is held by commercial banks, thrifts, and insurance companies suggests that the competitive advantage to the GSEs, at this point, is quite modest.

Given the modest, at best, advantage enjoyed by the GSEs in this market, what motivates their involvement? In our judgement, the mandates associated with their charter are the driving force. These include their general charge to provide financing for housing and the recently enacted and more specific interim affordable housing goals. If the market for owner-occupied housing is strong in the 1990s and if the income-related lending goals are not greatly changed, the GSEs may be able to reach their goals by focusing almost exclusively on single-family lending. However, if the goals are increased or if the market for owner-occupied housing weakens, then they will almost surely require multifamily programs to meet their goals.

The GSEs understand this relationship quite well. They relied disproportionately upon multifamily loan purchases to achieve their goals regarding low-and moderate-income purchases. Although multifamily purchases represented less than one-half of 1% of Freddie's purchases in 1993, they represented 1.8% of the units that satisfied their income goal. Similarly, multifamily purchases



represented 5.7% of Fannie Mae's total purchases in 1993 but 15.7% of the units used to satisfy its low-and moderate-income goal.

It would be interesting to develop a matrix that relates growth in the homeownership rate to the fraction of the goals that can be achieved primarily with single-family lending. This matrix could be further adjusted to show the relationship for different goals. For example, what mix of single and multifamily lending would be required for the GSEs to be able to reach a goal of 35% lending to low- and moderate-income households? We have not had an opportunity to construct such a matrix, but further analysis of this problem ought to consider the development of such a matrix.

What implications do these considerations have regarding GSE participation in multifamily lending as privatized entities? Their involvement will probably decline modestly for properties that serve households near median income and for properties with little signs of financial distress. They may specialize in the purchase of senior pieces of multiclass securities and may even contribute to the further development of multiclass securities. Given that alternatives to the GSEs exist in this portion of the market, such a response will probably have little or no impact upon the availability and cost of credit for the upper portion of the multifamily rental housing market.

The impact on the bottom portion will be more significant. Without the mandates to be active in this portion of the market, we would expect the GSEs to greatly reduce their involvement and, especially, to reduce their lending for projects operated by nonprofit organizations. Their reduced presence will probably not have a major negative impact upon this portion of the market for two reasons. First, as noted above, the involvement of the GSEs is still relatively small. Second, it is already difficult to obtain debt financing to produce affordable housing for tenants in this portion of the market. Debt financing for properties that serve low- and very-low-income households is a risky investment from which many traditional lenders shy away. The difficulties and the risk stem from the growing presence of nonprofit organizations, and the need for multiple layers of subsidies to make investment in this portion of the market both profitable and affordable to low- and moderate-income households will only make this situation more difficult. The absence of the GSEs will simply make this situation a little bit worse.

### **III.3. Would Existing Programs Be Able To Replace the GSEs?**

In principle, FHA's multifamily programs include many of the ingredients needed to replace the GSEs in the low- and moderate-income portion of the market. It has already been shown that the structure of the FHA program is similar to those of the GSEs and, in fact, the unassisted FHA programs serve a distribution of tenants similar to those served by the GSEs.

Despite their similarities, we believe a fundamental difference exists between them.<sup>31</sup> A government-run guarantee program has neither the mandate nor the incentives to manage the multifamily programs as efficiently as the GSEs. The problem is particularly acute in regard to management of distressed properties. Perhaps laws can be passed and funds provided to make its task easier, but a government institution like FHA seems destined to be less aggressive in its re-



sponse to mortgage defaults than a private firm responsible to its stockholders. The result will be higher losses on claims than a private firm would experience.

This may be seen as a strong claim on our part with little hard evidence with which to support it. We acknowledge the difficulty of proving such a claim without a substantial amount of additional research. Nonetheless, some insights can be gained by even a casual comparison of the experiences of FHA and Freddie Mac multifamily programs during the past several years. Freddie Mac's reaction to the losses in its multifamily programs was to shut down its programs and rebuild them. Freddie Mac virtually left the market until it was able to return with a better program. More people were hired and the fundamental approach to multifamily lending changed so Freddie Mac is now more of a primary lender than a conduit. FHA, on the other hand and despite many important changes in its system, was unable to respond as decisively or as independently as Freddie Mac. The result is that the losses to the FHA programs continued to grow long after the fundamental problem was discovered.

What other options might the government pursue? Many have long argued that providing affordable rental housing to low- and very low-income households has little to do with the cost of debt finance. In most situations, this cost for such properties is neither exorbitant nor an indicator of an inefficient market for multifamily debt finance. Instead, a high rent-to-income burden most likely arises for many households because their incomes are too low to afford housing deemed adequate by society and, in particular, by the community in which the property is located. This situation leaves the government with two broad sets of choices. Housing standards can be reduced so that less expensive units can be built and provided to low-income households. Society seems reluctant to take this step. Alternatively, some type of income-assistance program can be implemented. While housing advocates typically favor a housing voucher program as the best way to relieve high rent-to-income burdens—by far the most serious housing problem among low-income renters—limited resources make this solution unlikely.

#### **III.4. Conclusions for Impact on Multifamily Markets: Summing Up**

Two questions are addressed in this section. First, how would the privatization of the GSEs affect the availability and affordability of mortgage credit to multifamily housing? We argue that the effect upon the bulk of the rental housing market will be slight. The availability and cost of credit will remain about the same because the presence of the GSEs is still modest in the debt financing of multifamily housing and because competition in this market is still substantial. The cost and availability of funds in the portion of the rental housing market devoted to low-income households would probably suffer a bit, but even here the effect would not be substantial nor would it radically alter the current situation. Obtaining debt financing for many nonprofit-sponsored multifamily housing projects capable of producing affordable housing for low-income tenants would remain a serious challenge. Several recommendations follow from this analysis:

*(1) Privatization Should Not Be Driven by Concerns About Multifamily Finance.*

This statement may seem obvious given the relatively small size of the multifamily programs; however, the argument is more subtle. The competition faced by the GSEs in the area of multifamily finance is probably stiffer than in the single-family portion of the market. To be sure, the affordable housing goals are probably forcing the GSEs to do more in the area of multifamily housing than they would in a privatized environment, but not enough to play a major role in the privatization decision, which ought to be driven by considerations of the single-family side of the business.

*(2) The Risk Sharing Program Could Be Extended and Enlarged.*

Along with privatizing the GSEs, serious consideration could be given to increasing the risk-sharing program and assigning even more responsibility to the GSEs in the area of multifamily finance. The responsibilities of FHA would also be redefined. The new FHA would not be involved in direct underwriting of properties, but would work with the GSEs to establish these criteria and pricing policies. FHA would also monitor the behavior of the GSEs; for example, it would investigate foreclosures to ensure that agreed-upon procedures were followed at each step of the lending process. Other than this, FHA's role would consist primarily of subsidizing the GSEs for mortgage lending that promotes objectives of the existing mandates. Follain and Szymanoski (forthcoming) provide more information about the risk-sharing concept and its application to multifamily debt finance.

*(3) Demand Side Subsidies Could Replace GSEs and FHA Subsidies for Very Low Income Households.*

The GSE multifamily programs do not currently and will probably never provide debt financing at rates low enough to make rental housing affordable to low- and, especially, very low-income tenants. The reduction in cost needed, unless accompanied by government subsidies, would surely be rejected by their stockholders. An alternative is increased reliance on FHA multifamily programs, but they too have suffered heavy losses without greatly impacting markets. In fact, FHA mortgage insurance programs targeted to this portion of the market ought to be reexamined and perhaps eliminated. The savings gained from having fewer claims against FHA's insurance funds could then be targeted elsewhere.

#### **IV. EFFECTS OF PRIVATIZATION ON THE ACHIEVEMENT OF URBAN REINVESTMENT GOALS**

In addition to the direct promotion of owner-occupied and rental housing, the GSEs may affect the achievement of other social goals, including increased access to homeownership in areas with high percentages of minority residents and urban neighborhood reinvestment.

The GSEs are currently undertaking initiatives to promote neighborhood revitalization. For example, they consider waivers to the underwriting criteria in their standard and special programs for loans made to stabilize a neighborhood where property values are declining, where lenders demonstrate that loans are part of focused local redevelopment efforts. Also, in response to concerns by

lenders, the GSEs have clarified and revised their underwriting guidelines to offer lenders greater flexibility. Revisions to underwriting criteria have included changes to the allowable loan-to-value and payment-to-income ratios, proof of creditworthiness, property conditions, and the downpayment requirement. Finally, the GSEs are pursuing a number of research efforts to better understand redlining and discrimination issues and ways to address them. Their size is an advantage in these efforts.

Research has not fully explained why disparities exist in mortgage origination and acceptance rates in census tracts with high percentages of low-income or minority residents. Recent studies show that in a model of lending decisions with neighborhood risk variables included, racial composition of areas is not a significant variable in the decision to reject loans (Schill and Wachter 1993, 1994). However, questions remain whether neighborhood risk characteristics themselves may result from the lack of availability of mortgage financing, and what, if anything, can be done to encourage sustainable urban neighborhood reinvestment.

In a regime of fully privatized GSEs, government regulation, subsidies, and program expansion could lead to increased liquidity and increased homeownership in “underserved” areas, if these are social goals. However, incentives and returns to innovations to accomplish these objectives in a way that is sustainable without continued government assistance may be reduced with full privatization. Due to their for-profit status and their size, the GSEs may be better suited than the government or smaller fully privatized GSEs to carry out and evaluate innovation to accomplish these goals. Though uncertain, there is the potential for dynamic externalities arising out of GSE neighborhood reinvestment activities that may be less likely in a regime of full privatization.

## V. CONCLUSIONS

The ultimate goal of this paper is to shed light on a complex question: Will the privatization of the GSEs affect homeownership opportunity and access to mortgage markets? Our analysis suggests the answer is the affirmative.<sup>32</sup> The logic underlying this belief is quite straightforward. The current agency status of the GSEs amounts to the subsidization of their mortgage operations. Although the size of the subsidy and the extent to which it is passed on to mortgage borrowers are subject to debate and disagreement, all agree that a significant portion of the subsidy is passed along to borrowers in the form of lower mortgage rates. Therefore, the elimination of the agency status will surely result in higher mortgage rates for most borrowers. Low- and moderate-income households, minorities, and residents in areas defined to be underserved will probably suffer the most.

We further argue that the existing federal programs to encourage homeownership and equal access in the mortgage markets are unlikely to fill the gap left by the reduced role of the GSEs in these areas. One reason is that the funding needed to enhance the existing programs is unlikely to be provided by the Congress given the current fiscal climate. Even if the funds could be obtained, our sense is that existing programs are unlikely to be as efficient and effective as the operations of the GSEs in these areas if the federal government is vigilant in the enforcement of the affordable housing



mandates imposed upon the GSEs. Simply put, the expertise, incentives, and resources available to the GSEs are sufficient to make them private, efficient, targeted welfare providers.

Indeed, currently the role of the GSEs in these areas is being increased with the expansion of the affordable housing mandates imposed upon the GSEs. This could be done along with a reduction in the level of some existing federal programs; for example, some of the functions of FHA can be transferred to the GSEs. The net result of this ought to be a more efficient system to encourage homeownership and equal access to mortgage markets and a net increase in the reliance of these policies upon the private sector. This approach would also amount to a partial recapture of some of the subsidy associated with the agency status bestowed upon the GSEs.

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## ENDNOTES

1. For a review of the empirical factors affecting the homeownership decision, see Smith, Rosen, and Fallis 1988; Blackley and Follain 1988; Goodman 1988; Haurin, Hendershott, and Ling 1988; Krumm 1989; Wachter and Megbolugbe 1992; and Haurin, Hendershott, and Kim 1994. For a discussion of the effects of income and capital constraints on affordability, see Linneman and Wachter 1989; Zorn 1989; Gyourko, Linneman, and Wachter 1994; and LaFayette, Haurin, and Hendershott 1994.

2. The secondary market is composed of the two government-sponsored enterprises (GSEs), private conduits, and the publicly backed Government National Mortgage Association (Ginnie Mae). The origin of the current major role that GSEs play in financing home mortgage lending was laid in 1938 when the federal government established Fannie Mae with the mandate to create a secondary market for mortgage loans. In 1968, Fannie Mae was restructured into two entities with the establishment of Ginnie Mae as a separate government agency to guarantee passthrough securities backed by the Federal Housing Administration (FHA) and the U.S. Department of Veterans Affairs (VA). The Federal Home Loan Mortgage Corporation (Freddie Mac) was created in 1970, originally to provide a secondary market for mortgages originated by the thrift industry. Until the 1980s, most of the financing for home mortgage lending was supplied by local financial institutions. These were supplanted in the 1980s with the debacle of the thrift industry and the rapid development of secondary markets. See Wachter, 1990.

3. Net investment is defined as the change in mortgage debt outstanding between the current and previous years. See Federal Reserve Board Bulletin 1993; Fannie Mae 1993 Annual Report; and Freddie Mac 1993 Annual Report.

4. This limit is the maximum original principal amount for a first-lien conventional single-family dwelling. Higher limits are set for 2–4 family dwellings, for multifamily dwellings, and for properties located outside the continental United States. The benchmark used to adjust the limit is the national average one-family price as determined by the Federal Housing Finance Board. Although this benchmark declined somewhat in 1993, the GSEs elected not to adjust the 1994 limit downward (as reported by the Federal Housing Finance Board [CBO 1991] and the Freddie Mac Information Statement [1994]).

5. In 1992, the FHA ceiling was at least \$67,500, and up to 95% of the local median house price, if less than \$151,725.

6. Hendershott and Shilling (1989), using 1986 data, find that generally mortgage rates are 25 to 35 basis points higher for nonconforming than conforming loans. Cotterman and Pearce (1994) confirm these results and also find that, for California, conforming loans closed between May and July of 1989 had interest rates 20 to 50 basis points lower than rates on jumbo loans. Goodman and Passmore (1992) find that agency yields are 20 to 50 points below yields on nonagency debt. The substitutability of jumbo loans for conforming loans is likely to have changed over time; as Cotterman and Pearce (1994) note, thrifts may have priced jumbo loans more aggressively in the late 1980s than earlier, thus reducing the differential. In addition, increases in unemployment and housing price declines would likely increase risk and, as a result, the jumbo/conforming rate differential. To set an outside bound and encompass the possibility of riskier aggregate economic conditions, we adjust upward to a 50-basis-point-increase scenario.

[In their final text, Cotterman and Pearce estimate the effect for California in May–July 1989 as 45–50 basis points; they also estimate coefficients as low as 20 basis points in separate, annual regressions for May–July of 1989 through 1993 (Table 6, p. 126 in this volume). They conclude that 25 to 40 basis points is the “core range



of the conforming loan differential” (p. 102). Concerning the time-trend of the jumbo/conforming rate differential, they focus on the 1989–93 period in their final text, identifying several developments in the market that were then creating downward pressure on the differential (pp. 113–115).—EDITOR.]

7. The data and methodology used in the analysis are summarized in the text and endnotes, and a detailed discussion is provided in an Appendix which is available from the authors.

By using the 1989 American Housing Survey (AHS), we are able to confirm our results with those of other published studies that also use 1989 data but do not address the specific issues of this study. We could augment our study using 1991 AHS data, although we do not believe that doing so would have a major impact on our conclusions. The 1993 AHS was not yet available for public use at the time this research was conducted.

8. It could be argued that the GSEs provide a social benefit by allowing young households with low current income and high permanent income to become homeowners sooner. However, such a social benefit may be smaller than an action that allows households with small permanent incomes to become homeowners. To address this issue we relate current to estimated permanent income. As indicated in Appendix Table D.4 (see endnote 7), approximately two-thirds of each current income group (except for the higher current income level) has a higher permanent income, while one-third of each group’s current income is equal to or exceeds its permanent income. This suggests that GSE activity that allows marginally qualified households to become homeowners will facilitate ownership for both groups, although the size of the “now-own” group aided is likely to be larger than that of the otherwise “never-own” group.

9. We use the average annual contract interest rate (i.e., the initial interest rate paid by the borrower, as specified in the loan contract) on first-mortgage loans for existing single-family homes for 1989 (*Statistical Abstract of the United States*, 1990, Table 811).

10. Investors generally require greater equity in nonconforming than in conforming loans. We are not aware of econometric estimates of the size of this effect. Our choice of a downpayment increase from 10% to 15% is based on the observation that, in a market with a widespread availability of 5% downpayment loans for conforming mortgages, a 10% downpayment is the lowest available downpayment for the nonconforming market (MMIS Report, 1994). Moreover, we note that private mortgage insurance, required for all mortgages with less than 20% down, increases monthly payments by at least 35 basis points (and usually a year’s prepayment of the insurance premium). By extension, a 35-basis-point mortgage payment insures the additional risk of a shift in downpayments from a regime of 20% or above to one of 5% to 20% downpayments. Thus an upward shift in the downpayment may be traded off for a risk-based interest rate increase. (Although private mortgage insurance covers the first 25% of the loss, generally losses exceed this amount.) The impact on marginal households will combine effects (2) and (3), if cross-subsidies are eliminated with privatization. The shift to a 15% downpayment seems plausible with no cross-subsidization, given evidence that this is the average downpayment rate prevailing in U.S. mortgage markets (Engelhart and Meyer 1994). We should also note that it is possible that private mortgage insurance costs may increase with full privatization of the GSEs. (This may also occur to some degree without full privatization due to risks associated with increased use of mandates).

11. The average age of first-time homebuyers has gone up (see Haurin, Wachter, and Hendershott 1994). From the perspective of the present study, this may have two opposite consequences. On the one hand, a larger number of first-time homebuyers may magnify the effect of privatizing the GSEs because these effects are found to be greater among these households. On the other hand, older first-time homebuyers may have higher income, that is, more resources with which to purchase a home, thus mitigating the potential effects of GSE privatization on this group.

12. The methodology used is adapted from the Joint Center for Housing Study, Harvard University (1989). We adjust this methodology as follows: (1) The Harvard study uses an indexed value of the 1977 median house price of first-time buyers to estimate housing costs. Because we are working with micro-level data on individuals, however, we use the *actual* reported house values of individual first-time buyers in estimating housing costs. (2) The Harvard study assumes a 30-year fixed-rate mortgage with 20% downpayment. However, a 10% downpayment better reflects mortgages for which targeted groups are likely to qualify, and so we use the latter figure. (This leads to somewhat higher housing cost estimates in the present case, because we calculate the opportunity cost of the downpayment at a rate lower than the mortgage interest rate.) We thus include the costs of the required private mortgage insurance in the estimation of homeownership costs. (3) We use the family composition information in the AHS and 1989 tax tables to estimate taxes paid and tax savings from ownership. The Harvard study uses the difference between housing plus non-housing deductions (assumed to be 3.5% of income) and the standard deduction, and it assumes that the standard deduction is taken.

To estimate the total and after-tax cost of homeownership, we use the price of units purchased by first-time homebuyers in the 1989 AHS as the basis of the analysis and proceed as follows: Mortgage contract payment and interest rate as well as other costs such as property taxes, insurance, fuel, utilities, and maintenance are included in the calculation. The after-tax cost is estimated as the mortgage payment and other costs less the tax savings of homeownership. Tax savings are based on the excess of housing (mortgage interest and real estate taxes) plus nonhousing deductions, which are assumed to be 3.5% of household income, over the standard deduction. (Marginal tax rates are calculated directly from the tax tables supplied with Form 1040 for 1989. Taxable income is determined for each funding based on reported income and family composition. Appropriate deductions are calculated. Tax savings are calculated as the difference between the standard deduction and the estimated deduction times the marginal tax rate based on estimated taxable income.) The total cost of homeownership is assumed to be the after-tax cash cost plus the opportunity cost of the downpayment, amortization, and fees and closing costs, less expected equity buildup. (The opportunity cost of the downpayment is calculated using the weighted average return for a household portfolio. Weights used are the proportion of the average portfolio reported in the *Statistical Abstract*.) Expected equity build up is estimated as a weighted average of the increases in house values over the 1987–89 period. For more details, see Appendix (see endnote 7).

13. This 2% result is to be expected, given the approximately 5% interest rate increase from 10.12% to 10.62% and the 40% interest cost share of total housing costs (AHS 1989; Joint Center for Housing 1989).

14. We do not estimate these separately for samples other than young households, although we expect impacts for other groups to be somewhat less because equity rises and mortgage debt declines with age, thereby reducing the potential impact of interest rate or constraint increases (Shear, Wachter, and Weicher 1988).

15. That is, the estimate of the maximum house value that families can purchase, given standard underwriting criteria, is compared with the housing that they would choose, if their housing characteristic demands followed the pattern typifying unconstrained families. Evaluating the quantified representation of this intuitive exercise, as it appears in Tables 2 and 3, however, entails a fair amount of methodological discussion. In particular, to determine constrained households, we need to estimate household wealth. Because a direct measure of assets is not available in the 1989 AHS, an indirect measure is constructed. This involves inferring home equity, asset-generated income, and business income from the information available in the AHS. We estimate home equity directly as the difference between house value and the outstanding mortgage balance. We estimate the value of the latter two income flows and convert them into “liquid assets” by capitalizing flows into the appropriate asset stock and subtracting transaction costs. To do so, we use 1989 AHS data on the difference between total household income and income received from wages and salary and data on the variable VOTHER, which

measures income from all sources other than wages and salary. Also included in the AHS are a set of six indicator variables denoting the source of VOTHER income; the potential sources are: social security, alimony, unemployment compensation, welfare, rental income, and interest income. Linear regression is used to determine the average amount of income generated from each source. Asset-generated income is then capitalized to estimate assets. We describe the details of this process and provide regression results in the Appendix (see endnote 7).

We used the 1989 Survey of Consumer Finances (SCF) data to cross-validate our AHS results and found both estimates of household net worth and income to be similar to those of SCF. Average assets are estimated at \$102,999. This compares with the estimate of \$99,538 from SCF. Mean incomes in the AHS are measured as \$41,907 for owners and \$23,184 for renters versus \$43,699 and \$20,263 in SCF.

16. Unlike Linneman and Wachter (1989), we do not limit the analysis to a sample of recent movers, but rather use the entire sample as well as recent movers and other subgroups. For all groups, we limit the analysis to households whose 10% down, 28% payment/income mortgages would fall below the GSE conforming limit.

17. These results, along with those on income constraints in Table 3, below, are broadly consistent with those of Linneman and Wachter (1989) and Follain, Megbolugbe, and Wong (1994).

18. As Follain, Megbolugbe, and Wong (1994) show, a high loan-to-value (LTV) mortgage is a choice for some who view the cost of debt to be cheaper than the cost of equity. In such a case, we always move to a corner solution. Privatization will reduce the cost of debt relative to equity, which may mean that a pro-debt bias will be reduced. If one exists and this argument is correct, then we may see some unconstrained people choosing lower LTVs.

19. For a discussion of methodology and variable measurements used in empirical studies of tenure choice, see Goodman and Kawai (1986), Blackley and Follain (1988), Goodman (1988), Linneman and Wachter (1989), Wachter and Megbolugbe (1992). A detailed discussion of how these methods are used here is included in the Appendix (see endnote 7).

20. There is a strong positive association of the permanent-income component with homeownership. The coefficients on transitory income are generally smaller and, often, negative and significant. The relative cost of ownership is also a strong, negative determinant of ownership, while anticipated capital gains, as captured by the value-to-rent ratio, are positively associated with ownership. All equations also show a significant tendency for homeownership to rise with age. Marital status is positively and significantly associated with ownership in most of the full-sample equations. (In recent movers it is insignificant but negative.) Somewhat surprisingly (although consistent with findings of other recent studies), in almost every case, homeownership rates fall with the number of dependents in the household. Without the affordability constraint variables, males and minorities tend to have lower homeownership rates than females and whites, respectively, as in other studies; but once we control for constraints, minorities do not exhibit lower rates of homeownership. Constraint variables have the expected negative signs and are significant in all but the low-income sample equations. The income-constraint terms, though usually statistically significant, tend to have low-magnitude effects; but the downpayment-constraint indicator is uniformly significant, statistically and substantively. These results conform to those of other recent studies, using 1989 data. See Linneman and Wachter 1989; Wachter and Megbolugbe 1992; Gyourko, Linneman, and Wachter 1994.

21. While both the downpayment requirement and income requirement effects are expected, we separately analyzed the two to allow the reader to gauge their separate impact. We could also have analyzed both effects operating simultaneously but did not do so.



22. Underwriting that limits credit risk, by using measures of creditworthiness, also is likely to contribute to this outcome. GSEs are what is known in the market as “A lenders,” meaning that borrowers generally need a good credit report to be approved, in the absence of compensating factors. There is a submarket referred to as “B, C, and D” loans designed for borrowers with progressively poorer credit. Although these are not all low-income borrowers or borrowers from underserved areas, they are probably disproportionately so. These lower rated loans often do *not* have high LTV ratios.

23. It is possible that the increased use by GSEs of Private Mortgage Insurance with more coverage and higher premiums means the GSEs could price out indirectly on targeted loans.

24. The social goals placed on GSEs force them to increase their portion of the market in targeted neighborhoods and to targeted homeowners. This type of targeting may change who owns such mortgages but need not change their number. However, if government-insured and other lenders to underserved areas and populations maintain their existing volume of loan activity, total lending will increase. Whether this occurs depends in part on whether there is a fixed market for mortgages or whether the size of the mortgage market that is consistent with sound lending can be expanded.

25. It is difficult to consider to what extent Community Reinvestment Act (CRA) monitoring and enforcement at the level of primary lenders—including the reconstituted GSEs, if they choose to enter primary lending—could fill the breach created by reduced federal presence at the secondary-market level. Our sense on this is that primary lenders and specialized smaller secondary entities are more difficult to monitor than the GSEs. The efficacy of the existing CRA monitoring has been questioned by both financial institutions and community advocates. Proposed new regulations to address these criticisms have yet to be promulgated. Any CRA oversight of primary lenders will always confront the difficulty of determining what is an adequate community lending effort for a specialized lending institution.

26. A comment is in order regarding the definition of multifamily housing. Our approach uses the official definition for purposes of regulation: multifamily housing consists of housing located within structures with five or more units. Most of such housing is rental housing, but all rental housing is not in multifamily housing. In fact, a large percentage of all rental housing is in properties with fewer than five units in the structure. Although it would be interesting to consider the impact of the privatization of GSE activity on rental housing generally, our assignment called for us to focus upon multifamily housing as defined, and data were not collected with this in mind.

27. Some information about the racial composition of the tenants and the geographical location of the units of Fannie Mae’s and Freddie Mac’s programs is presented in each GSE’s recent “Report to Congress on Interim Goals” (1993); the data presented below on the income distribution of the tenants is also taken from these reports. We were unable to identify information about the distribution of multifamily loans by original LTV and debt coverage ratio.

28. Unfortunately, it is difficult to be much more precise than this because the GSE data presented above pertain to 1993 purchases whereas the FHA data are based upon a sample of properties whose mortgages were insured by FHA during the past 30 or so years. We are unaware of any data that would allow a closer examination.

29. The program has yet to begin and the exact terms are still being developed. The broad features of the program resemble those in the former FHA coinsurance program and those in the GSE delegated underwriting programs. Under the new program, the GSEs or their delegated underwriters will underwrite a multifamily loan, but the responsibility for losses, if they occur, will be divided between the GSEs and FHA. Although a variety of sharing



arrangements have been discussed, it appears that the GSEs and FHA will share the losses equally. Although the initial size of the program is small, the idea is an important one that ought to be further developed and used. It frees FHA of the responsibility of doing its own underwriting and puts it into the hands of those with a strong financial incentive to do sound underwriting—the GSEs; furthermore and most importantly, the program places the responsibility for foreclosure into the hands of private agents that have a strong incentive to minimize losses. These advantages make the risk-sharing program a potentially powerful new addition to the multifamily financing arena.

30. Both GSEs have announced plans to continue their equity investment in multifamily housing via the low-income housing tax credit. We doubt if this activity is likely to be much affected by whether the GSEs are privatized because the returns to such investments are largely tax based and the units do not count toward their housing goals.

31. There is also a short-run problem: FHA has lost some of its potential to execute its programs. Staff have been eliminated and the new delegated underwriting system is not yet ready to assume a large-volume program. Also, many within the FHA program are heavily engaged in the disposition and management of assigned properties. Despite their severity, these problems can presumably be remedied with more staff.

32. Our suggestion does not take into account safety and soundness issues related to the GSEs. Policies to monitor and regulate the capital requirements of the GSEs are currently being developed by the Office of Federal Housing Enterprise Oversight. If additional responsibilities were to be assigned to the GSEs, these would have to be factored into the development of GSE capital standards. A discussion of this issue is complex and well beyond the scope of this paper.

## COMMENTS ON THE WACHTER ET AL. PAPER

Anthony M. Yezer

Thanks to Bill Krivant and Bill Shear for inviting me to participate in the discussion of this interesting public policy issue.

This paper is divided into an extended discussion of implications for homeownership and a much shorter analysis of likely effects on multifamily housing. There is a brief reference to effects on neighborhood reinvestment goals. I will organize my comments accordingly, beginning first with effects on homeownership and concluding with a discussion of multifamily housing and neighborhood reinvestment.

The analysis of homeownership effects considers possible changes in interest rates, underwriting criteria, housing costs, affordability, and homeownership rates. My observations will begin with a personal story, then turn to some technical issues regarding the economic analysis, and conclude with a general observation on policy alternatives.

First the story. I was somewhat alarmed to find, as I read this report, that my life has been a fairy tale. However, in reading the references I miraculously returned from fantasy land to reality. Let me explain. I have taken back one mortgage as a seller. The loan-to-sales-price ratio was 90%, the loan-to-appraised-value ratio was 95%, and the borrowers had been married 1 year and had only one asset (a gift letter from a parent covering most of the downpayment). Nevertheless, the investment has proved quite successful and for the 2 years following endorsement I received numerous letters offering to purchase the mortgage from firms that regularly scan the property transfer files looking for owner financing to purchase. According to this report people like me do not exist and this story is fiction. The report assumes that after privatization loan-to-value ratios fall to 85%. However, further reading of the Linneman and Wachter (1989) paper, which outlined the method used in this paper, reveals that the authors specifically mention that even in their 1981–83 data “the financing innovations of that period (for example, owner financing) provide imperfect, but effective, substitutes to the net wealth of the borrower.” The entire message of the Linneman-Wachter paper is that significant qualification constraints of the 1975–77 period were substantially eliminated by financial innovation that occurred by the second 1981–83 period analyzed. I am troubled by a report that appears to suggest that privatization will lead to retrenchment to inflexible, conservative underwriting standards. I believe that privatization would cause the maximum loan-to-value ratios for conventional mortgages to rise above 90% because there is ample evidence that such lending is profitable.

Now some technical points which imply, at least, limitations of the present study. In some cases these technical points have important implications for the results presented by the authors.

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*Anthony M. Yezer is Professor of Economics at The George Washington University. Mr. Yezer indicated that he had no prior or current relationships with Fannie Mae or Freddie Mac*

(1) The study allows for no market responses to the changes assumed to be associated with privatization. For example, a fall in the demand for housing has no effect on the price of housing capital. Ordinarily we assume that a fall in demand for housing is passed backward, in part, to inelastically supplied inputs like urban land. An increase in required downpayments that is binding on some households might result in an increase in savings. This is most important because, in other contexts, falling savings rates are viewed as a problem. Sellers might respond to credit limits by providing, for example, seller financing or builder buydowns. Clearly these sorts of responses would mitigate any tendency for privatization to result in a decline in homeownership and housing consumption.

(2) The role of adjustable rate mortgages (ARMs) in eliminating problems of temporarily income-constrained households is not discussed. Clearly ARMs, particularly with “teaser” rates, have allowed households experiencing temporary income constraints to purchase housing far earlier than would be the case in the fixed-rate-only regime considered in this report. Presumably the GSEs may have had some effect on ARM rates but the report contains no discussion of this issue.

(3) The role of FHA and VA mortgages is not considered. These government mortgage insurance programs are the marginal source of mortgage credit to low-income homebuyers. Clearly, if privatization caused the reactions assumed for conventional lending, the demand for FHA mortgages in particular would expand substantially and there would be great pressure on maximum mortgage amounts to qualify for FHA and VA insurance. Conversely, if current mandates for GSEs to serve low-income borrowers are expanded, there should be important implications for the distribution of applicants for government insurance programs. Specifically, the number of applications should fall and credit risk faced by the government insurance programs should rise. Thus the interaction between the GSEs and government insurance, particularly FHA, is most important.

(4) The report refers to returns to scale enjoyed by the GSEs but there is no evidence offered as proof of the existence or magnitude of these returns.

(5) The original Linneman-Wachter estimates of wealth-constrained households were made using Survey of Consumer Finance data that have information on household assets. This study uses wealth estimates constructed by “magic” from the American Housing Survey data set that has no data on assets. The result is a lack of precision in estimates of the number of downpayment-constrained households.

(6) The GSEs buy mortgages on single-family properties that can be owner- or renter-occupied. Thus, a rise in mortgage interest rates due to privatization is experienced by both owners who occupy and owners who rent. Therefore, both owner and renter costs should rise. For some reason, the study assumes that owner costs rise but renter costs stay the same. This is really strange and produces a substantial homeownership rate effect. If a housing unit is for sale potential owner-occupants and potential landlords can both bid on it. If privatization raises mortgage rates only to owner-occupants, then I predict sale to the landlord—but where does the landlord get a mortgage at the former, lower interest rate? In fact, both the potential owner-occupants and landlords will experience higher interest rates after privatization, the relative cost of owning versus renting will not



change, and there will be no effect on homeownership. This reflects a general contradiction in the mandate of the GSEs, which are supposed to raise homeownership rates and make housing more affordable to low-income households. To raise homeownership rates, the GSEs must lower owner cost without lowering renter cost. Improving housing affordability to low-income households, who are generally renters, requires that rents be lowered also. However, lowering rents causes the ratio of owner to renter cost to rise and discourages homeownership. Hence the fundamental contradiction in the mandate of the GSEs.

(7) The report states that there are no government revenue implications of privatization. This ignores the effects of removal of tax preferences and additional SEC security registration fees. Such an error of omission illustrates a problem with attempts to achieve public policy objectives through indirect mechanisms such as the advantages provided to the GSEs. It is difficult to determine the size of the implicit subsidy and to estimate the distribution of the subsidy across various stakeholders.

This discussion of homeowner issues concludes with a comment on the general public policy issue of privatization and homeownership. First, the goal of homeownership needs further refinement to distinguish own-now from ever-own from constrained owners. It is possible to raise the own-now rate by enabling or inducing households to buy 1 year earlier and yet leave the fraction of households that never own unchanged. Second, there must be some sense of perspective in which it is realized that tax policy, interest rate movements, and the real cost of producing housing are far more important to homeownership than any proposed changes in the housing finance system. Third, and most important, the relationship between the GSEs and government insurance programs must be clarified. The primary rationale for continued GSE status is a desire to reduce the size of FHA, or perhaps eliminate it entirely. There is evidence that FHA has difficulty operating as an insurance program, whereas the GSEs have developed substantial skill in managing risk, including innovative education programs. As they are induced to move into higher-credit-risk mortgage activity, their ability to manage credit risk should improve substantially. If the GSEs are pushed continually to increase high-risk lending and their ability to assess credit risk improves accordingly, they will force the issue by leaving FHA with the least creditworthy borrowers and hence with large losses and/or very high fees.

Now that I have likely succeeded in alienating everyone in this room and in exhausting my allotted time, I will turn to multifamily housing issues and neighborhood revitalization.

There is relatively little literature about the supply of financing for multifamily properties, and while the report adds little specific information, the general presentation appears sound. Apparently there is no obvious price advantage associated with GSE-financed units. The discussion of the differences between FHA and GSE multifamily operations, while short on solid substantiation, is intuitively plausible. The limitations on FHA in pricing credit risk and limiting forbearance are most important for public policy. FHA has the same problem in winding up economically unviable properties that public railroad corporations have in eliminating passenger routes that carry few passengers at high cost. The political economy of this problem is well known. Essentially, I have argued above that similar differences are associated with low-income single-family lending. The GSEs are likely to do high-risk lending for multifamily or single-family properties more efficiently than it is done under competing government insurance programs.



Finally, it is important to emphasize the relationship among increasing mandates for serving low-income markets, capital standards, and the privatization issue. To the extent that mandates raise credit risk for the GSEs, privatization becomes more attractive to the GSEs. However, if the mandates rise and capital requirements are not increased accordingly, the value of the implicit subsidy associated with perception of a federal guarantee increases and privatization becomes less attractive. The relationship among mandates, capital standards, implicit subsidies, and incentives for privatization is thus rather more complex than the discussion in the report implies. Of course, this relationship is more properly the object of another entire report. Hopefully, when the four agencies produce their mandated studies of privatization, they will bring together the crucial relationships among issues that link the individual commissioned reports.

## RESPONSE TO ANTHONY M. YEZER'S COMMENTS

Susan Wachter, James Follain, Peter Linneman,  
Roberto G. Quercia, and George McCarthy

Mr. Yezer's first point is that "ample evidence" exists in the profitability of nonconforming 90% loan-to-value mortgages. While some of these loans exist now, they are few, given standardization benefits in the after market. The academic literature estimates interest rate differentials, due to agency status, with existing downpayment differentials. We base our assumptions on increases in interest rates and downpayments under privatization on these studies. (As an aside, the major point of Linneman and Wachter 1989, is that wealth constraints matter enormously, while income constraints matter much less by 1983.) On our wealth estimates, of course there is measurement error, but in the aggregate it should wash. Also, at the microestimation level, such measurement error biases our coefficient on the wealth-constraint variable towards zero.

We disagree on the importance of the first point that declining housing prices mitigate our results. This is a second-order effect with very little likely impact. We also disagree on the effect of the fact that the GSEs buy mortgages on single-family properties that can be owner- or renter-occupied. Because the GSEs are a very large part of the owner market and a very small part of the renter market, cost increases with privatization impact the entire owner-borrower set but are "eaten" by the limited group of rental investor-borrowers and hence not likely to have market-wide outcomes. Also, the comments that we do not account for market responses nor recognize the role of ARMs and seller financing are incorrect. These are built into the model via the estimated-payment-constraint effect.

Finally, we agree with the comment that the GSEs have developed substantial skill in managing risk, including innovative education programs, which is entirely in line with our view of GSEs as relatively efficient privatized housing welfare providers.

## FANNIE MAE REVIEW OF THE WACHTER ET AL. PAPER

The March 22, 1995, draft paper “Implications of Privatization: The Attainment of Social Goals” by Susan Wachter et al. attempts to measure the impact on specified “social objectives” of making Fannie Mae and Freddie Mac fully private.

The paper acknowledges two key features of Fannie Mae and Freddie Mac that provide important benefits to the housing finance system—first, the central position that the companies occupy in the housing finance system and the unique status accorded our financings in capital markets; and second, statutory mandates that require Fannie Mae and Freddie Mac to focus particular attention on families and communities in need. Much of the paper is devoted to a quantitative analysis of the potential impacts of privatization on particular groups of households.

We agree with many of the authors’ basic conclusions:

- The authors acknowledge our role in promoting efficiency in the market by establishing mortgage-backed securities. They attribute the growth of mortgage securitization in part to the “financial innovations of the GSEs.”<sup>1</sup>
- The authors cite research that confirms that we lower mortgage interest rates by 25 to 50 basis points, and they assert, “The elimination of...agency status will surely result in higher mortgage rates for most borrowers.”<sup>2</sup>
- They find that making Fannie Mae and Freddie Mac fully private would increase housing costs and decrease homeownership overall, and that the effects would fall most heavily upon African-Americans, and central-city and low- and moderate-income households; reductions of homeownership rates would be as much as 10% or more among some of these groups.<sup>3</sup> They conclude, “social policies to enhance home ownership opportunity would suffer if the GSEs are privatized.”<sup>4</sup>
- The authors confirm that a fully private Fannie Mae and Freddie Mac cannot be expected to continue to maintain special efforts to promote targeted financing, and they state, “The complete privatization of GSEs may have significant impacts on low-to-moderate income home ownership. Fully privatized GSEs would likely reduce their involvement in special programs, because the legislative mandates to be active in this area, imposed by virtue of federal charters, would be

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<sup>1</sup> See the Wachter et al. paper, [pp. 341, 356].

<sup>2</sup> Ibid., [pp. 341, 367].

<sup>3</sup> Ibid., [p. 354].

<sup>4</sup> Ibid., [p. 355].

gone.<sup>5</sup> Most importantly, empirical results indicate that central city, low-to-moderate-income, and minority households' ownership rates would decrease, if the GSEs were to be fully privatized."<sup>6</sup>

- They affirm that existing federal programs “are incapable of effectively filling the gap” that would be left by making Fannie Mae and Freddie Mac fully private.<sup>7</sup> Even assuming federal funding were to be provided (and the authors very clearly do not believe it would be), they indicate that “existing programs are unlikely to be as efficient and effective as the operations of the GSEs.” They cite our expertise, incentives, and resources<sup>8</sup> and conclude that Fannie Mae and Freddie Mac may be the most cost efficient mechanism for implementing the overall housing objectives of the federal government. “Even if the funds could be obtained to expand some existing federal programs, we believe that they would likely be less efficiently delivered to beneficiaries than via the GSEs.”<sup>9</sup>

As significant as these findings are, we believe the March 22, 1995, draft reflects certain limitations that result, nonetheless, in an understatement of the impact of making Fannie Mae and Freddie Mac fully private. Some of these are related to the availability and interpretation of the data. But our most important concern is the authors' circumscribed approach to the issue. Their review concentrates largely on measuring the impact of the higher mortgage interest rates and higher downpayment requirements that would result from full privatization, and the loss of statutory goals-driven low- and moderate-income initiatives. These results represent only part of the effect.

While they make reference to innovation and efficiency, the authors do not fully consider the value of these contributions in their analysis or indeed the various other significant components of our public mission and how we serve homebuyers. In addition, the paper provides only a partial picture of the special efforts that Fannie Mae is making to serve low- and moderate-income families and communities in need. Finally, the paper offers insufficient analysis of the range of issues that should be considered in any proposal to further increase our publicly mandated housing goals.

## I. THE POTENTIAL IMPACT OF FULL PRIVATIZATION

### A. Homeownership Estimates

The authors apply a variety of modeling techniques to assess how making Fannie Mae and Freddie Mac fully private might affect the ability of families to purchase homes. The analysis recognizes that fully privatizing Fannie Mae and Freddie Mac would increase mortgage interest rates, and

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<sup>5</sup> As detailed in our response to the Stanton paper, our special status provides us both the obligation and the tools to carry out our public mission.

<sup>6</sup> See the Wachter et al. paper, [p. 353].

<sup>7</sup> Ibid., [p. 355].

<sup>8</sup> Ibid., [pp. 367–8].

<sup>9</sup> Ibid., [p. 355].



it could subject potential homebuyers to more stringent underwriting standards than are currently available.

The authors state:

“The ultimate goal of this paper is to shed light on a complex question: will the privatization of the GSEs affect home ownership opportunity and access to mortgage markets? Our analysis suggests the answer is the affirmative....The elimination of the agency status will surely result in higher mortgage rates for most borrowers. Low and moderate income households, minorities, and residents in areas defined to be underserved will probably suffer the most.”<sup>10</sup>

The estimated impacts would be greatest among those groups and in those communities with the lowest homeownership rates. The authors estimate that making Fannie Mae and Freddie Mac fully private could reduce the homeownership rate among African-Americans—who are currently one-third less likely to own than whites—by 2.8 percentage points. The rate for low-to-moderate-income households would decline by 2.7 percentage points; the rate among young households could decline by 3.5 percentage points; and the homeownership rate within central cities could decline by 2.5 percentage points. They find that homeownership rates in some categories could drop as much as 10% or more. The authors find these impacts to be substantial, and we agree.

The authors estimate that making Fannie Mae and Freddie Mac fully private could decrease the overall homeownership rate by 1 to 2 percentage points. However, the authors consider this result “modest.” We must disagree with this characterization. To put this figure in context: A 1- to 2-percentage-point decrease represents 1 to 2 million households. A 2-percentage-point increase in the national homeownership rate took 13 years to achieve.<sup>11</sup> It is worth noting, too, that the administration’s “National Homeownership Strategy” initiative, a sweeping package of 100 action items to increase homeownership, intends to increase homeownership by 2.6 million families (over what would have occurred through demographic changes and current efforts). A decrease of 1 to 2 million families as the authors’ data suggest, would wipe out most of this effect. It is difficult to understand why the paper dismisses an impact of this proportion.

## **B. “Never Owned”/“Own Now”**

The authors’ presentation at the April 13, 1995, seminar discussion of their paper further discounted the effect of full privatization by distinguishing between “never owned” and “own now.”

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<sup>10</sup> Ibid., [p. 367].

<sup>11</sup> During the period 1967–80—the last period of sustained increase in the national homeownership rate—the rate rose from 63.7% to 65.6%. (A combination of demographic and economic trends caused the rate to decline from its peak, to 63.8%, from which it has recovered somewhat.)

The draft makes reference to this distinction as well, noting that the impact on the homeownership rate would be lower if only “never owned” were included.<sup>12</sup>

The authors do not consider at all the impact of the work Fannie Mae is doing to bring new applicants into the homebuying market: our outreach to new immigrants; the various multilingual educational materials presented through housing fairs, advertising, special events; and anti-discrimination initiatives, as well as targeted underwriting. These efforts are more than special initiatives—they are significantly efforts to transform housing finance by overcoming barriers to homeownership.

The more important point, however, is that the “never owned”/“own now” focus is simply misdirected. The number of families who would have never owned a home but for our role in the market may be a point of interest (and indeed some pride to us), but our public mission is far broader and more encompassing.<sup>13</sup> Helping families who would not otherwise have had the opportunity to own a home is only a part of what we do. Indeed, FHEFSSA reinforced and expanded our mission. Even there, with the addition of extensive goals and reporting (and detailed discussion of how to weight activities to be counted against those goals), nowhere appears any reference to “never owned” as a measure of impact. The Congress’ manifest interest in encouraging Fannie Mae and Freddie Mac to take a leadership role in promoting neighborhood reinvestment, for example, is in no way modified by considerations of whether the families we thereby help might *someday* anyway buy a home. The mandate is to help address a *current* condition.

Indeed, the “never owned” distinction does not appear to hold any place in national housing policy. Federal housing support overall—from grants and subsidies to tax incentives—is directed toward promoting, expanding, and accelerating homeownership opportunity. National housing policy is founded on recognition of homeownership as a source of neighborhood stability, family security, individual status, wealth accumulation, and pride. Acceleration of homeownership opportunity advances the social and economic benefits that underpin our national housing policy. None of these

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<sup>12</sup> See, for example, the Wachter et al. paper, [p. 342]. At the outset, it should be noted that the assertion is incorrect, because a delay in homeownership results in a permanent reduction of the homeownership rate regardless of whether individuals attain homeownership later in life. The homeownership rate is a snapshot; if homeownership is delayed for a portion of the market, the rate is simply reduced by that amount.

<sup>13</sup> The Charter Act as amended states as our mission to: “1) provide stability in the secondary market for residential mortgages; 2) respond appropriately to the private capital market; 3) provide ongoing assistance to the secondary market for residential mortgages (including activities relating to mortgages on housing for low- and moderate-income families involving a reasonable economic return that may be less than the return earned on other activities) by increasing the liquidity of mortgage investments and improving the distribution of investment capital available for residential mortgage financing; 4) promote access to mortgage credit throughout the Nation (including central cities, rural areas, and underserved areas) by increasing the liquidity of mortgage investments and improving the distribution of investment capital available for residential mortgage financing.”

policies is weighed against the criterion of whether its beneficiaries would never own a home but for the assistance.<sup>14</sup>

### C. Selection and Application of Data

Data available to the authors at the time of the draft did not include 1994 data. The availability now of our 1994 data should eliminate the need to rely on less accurate and clearly dated 1992 HMDA figures. Fannie Mae's 1994 data show continued significant increases in all categories of targeted activity; we would expect consideration of our most recent data in the final document to augment the assessment of the impact of making us fully private. (For further discussion of Fannie Mae's targeted financing activity see pp. 389–391.)

In addition, some data are simply misapplied. One example may be illustrative of how our role is understated. The authors cite research based on 1992 HMDA data to assert that “only 24% of loans purchased by Fannie Mae and Freddie Mac were extended to lower income borrowers, whereas 27% of loans made in the primary market were made to such borrowers” (emphasis added)<sup>15</sup> The suggestion appears to be that the secondary market lags the primary market in the proportion of business directed toward low-income activity. But closer analysis reveals that the primary market's entire jumbo market activity is omitted from these calculations. These data cannot be used as the authors do, to compare the proportion of our business that serves low- and moderate-income housing to that of the primary market.<sup>16</sup>

### D. Rental Housing

The authors offer a brief analysis of the potential impact on rental housing. Using the necessarily more limited data on multifamily finance, they assert that the overall effect on the rental housing market of making us fully private will be “slight.” They suggest, “the cost and availability of funds in the portion of the rental housing market devoted to low income households would probably suffer a bit, but even here the effect would not be substantial nor would it radically alter the current situation.”<sup>17</sup>

While the authors correctly note that we constitute a much smaller share of the multifamily finance market than of the single-family finance market, we believe their analysis undervalues Fannie Mae's contribution to the multifamily market.

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<sup>14</sup> See, e.g., U.S. Department of Housing and Urban Development, *The National Homeownership Strategy: Partners in the American Dream*, 1–7 (May 1995), which identifies the decline in homeownership rates among household headed by persons under 35 as one of its concerns.

<sup>15</sup> See the Wachter et al. paper, [p. 352].

<sup>16</sup> Take as an example, a lender that originated 100 loans: 1 low-income conforming loan, the rest of the business entirely in jumbo (non-low-income) loans. Using the approach the authors cite, that lender would appear as doing 100% low-income lending even though only 1% of its total business was in fact low-income.

<sup>17</sup> See the Wachter et al. paper, [p. 365].

With \$5 billion in multifamily investment in a single year and \$30 billion in multifamily mortgage holdings, Fannie Mae is the largest private sector participant in the multifamily market. As such we have used our resources and expertise to effect important changes in the market overall.

When lenders left the market during recession, we remained, providing stability and facilitating a rebound in the industry. We are now even better able to provide market liquidity in stress situations.

Increasingly we are enabling short-term lenders to provide long-term financing to their customers. Through such vehicles as our NationsBank Conduit partnership, financial institutions can package large volumes of long-term multifamily mortgages and sell them to Fannie Mae under pre-arranged terms and conditions. This will become even more valuable as financial institutions focus on even shorter term investments.

We have brought efficiencies and innovations to the marketplace. Our Credit Enhancement Collateral Pledge Agreement is an example, providing credit enhancement and liquidity facilities to the tax-exempt mortgage market.

In the area of underwriting, we pioneered standard physical needs assessments and environmental surveys. The industry has followed our lead and as a result, the physical condition of all properties is now a critical criterion for loan amount calculations. Overall the standardization of documents and processes that we have achieved can be expected to bring still more efficiencies to the multifamily market.

We developed new products to meet market demands. An example is a forward commitment program for low-income tax credits, which is providing most of the financing for the HUD/AFL-CIO Housing Investment Trust Partnership pension fund initiative.

Our goal is to bring the value of market securitization to all market sections. An example is our present focus on securitizing smaller loans.

Going forward, it is clear that the industry needs the presence of a market leader that can bring strength and resources to multifamily—both providing capital and effectively managing large portfolios of loans.

As the authors note, the multifamily business is fundamentally different from single family. Though our role in this market is also different, it is nonetheless one where our leadership, innovation, and expertise provide significant and indeed expanding value.

## **E. Scope of the Review**

The most serious concern is that the authors' circumscribed view of our role presents an essentially static picture that omits a great deal of the unique value we bring to addressing "social goals." Among the issues they fail to assess are the value of the liquidity, standardization, leadership,



technology, and expertise we provide. Our efficiency is acknowledged in considering whether alternative mechanisms can better fulfill our role. But it does not appear to be evaluated in the context of the cost of losing these efficiencies, were we to be made fully private.

While our contribution to lowering mortgage interest rates may be familiar and perhaps most readily susceptible to quantification, our role and value are far more extensive and indeed complex than lowering interest rates and loan-to-value requirements, and fulfilling mandated housing goals. More difficult to analyze though these contributions may be, it must be recognized that such omission makes the Wachter paper an incomplete analysis of the overall issue of “social goals.”

We have raised concerns about similar omissions in the context of several of the other papers on which we have already submitted comments.<sup>18</sup> While we will not detail those comments again here, it bears emphasizing that our role has been an *ongoing* and *evolving* one. Were we to be made fully private, many of these effects would disappear.

The paper praises specific changes we have brought about, in particular, our role in developing and establishing the market for mortgage-backed securities. MBS is a good example of precisely the kinds of contributions we make that the paper declines to analyze in its assessment of social goals impact. It is an example of both how the market has changed and how we have changed it, of our innovation and our capacity to lead the market, of a mission ongoing.

The Congress recognized the value of leadership in its consideration of FHEFSSA and looked to us to continue, indeed expand our leadership role. It is our charge as part of our public mission to continue to lead with technology, product innovation, and dynamic changes into the future.

## II. FANNIE MAE'S CURRENT IMPACTS ON UNMET HOUSING NEEDS

The paper understates the positive impacts that Fannie Mae, in particular, is currently having on unmet housing needs through our affordable housing initiatives.

The range of such activities is described in our *Annual Housing Goals Report*, which is available from Fannie Mae or from HUD's Office of Government-Sponsored Enterprises. While we will not attempt to detail them here, specific examples of recent initiatives include the following:

- Fannie Mae has created the only private secondary market for Home Equity Conversion Mortgages (HECMs), aimed at elderly homeowners wishing to convert their accumulated home equity into cash. These mortgages are insured by FHA. Since the program began at the start of this decade, Fannie Mae has purchased more than 10,000 loans. Fannie Mae has expended considerable time, talent, and money to develop, market, and manage this product, despite its low volumes. Our experience with HECMs has led to an aggressive effort to develop a conventional

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<sup>18</sup> See for example the Fannie Mae review of Stanton's paper in this volume; see also the Fannie Mae review of Hermalin-Jaffee's paper in this volume.

reverse annuity mortgage product. While HECMs provide an important outlet for this identified need, bringing a conventional Fannie Mae product to the market would open opportunities for a much broader segment of the elderly population.

- Fannie Mae recently agreed to create a secondary market for HUD-guaranteed loans on Native-American trust lands. We are working with the Bureau of Indian Affairs to create acceptable documents to enable us to provide conventional loans on tribal trust lands. We have recently qualified the Puget Sound Development Authority in Washington State as a seller-servicer to act as a conduit to Fannie Mae for loans to Native Americans. All of these efforts will extend choice and opportunity to a part of the population that has long been overlooked by the mortgage finance system. Creating these products has been difficult and costly for Fannie Mae. The projected volumes for these products is small. Yet consumers on Native-American lands will receive significant benefits from our success.
- Fannie Mae recently announced a \$100 million pilot effort to purchase rehabilitation loans under HUD's Title I program. Our creation of this market will reduce borrowers' costs by an estimated 250 basis points, increase the number and quality of participating lenders, and thus increase benefits to homeowners seeking to improve their properties. This product is particularly useful in central cities. The lack of an effective, affordable rehabilitation loan program is a consistent theme in our Partnership City negotiations.
- Fannie Mae also has underway an extensive consumer outreach and education effort. This includes paid advertising in print and electronic media, sponsorship of housing fairs, and support of nonprofit housing counseling agencies through printed materials, training, and technology and operating support. These efforts provide consumers with information about the homebuying and financing process. They are driven by the findings of our privately funded opinion surveys that many households that can afford to buy homes are intimidated by complications of the housing finance system, or discouraged from entering the process. There is no "Fannie Mae" brand name product that consumers are urged to use or that they can identify. We may or may not end up securitizing or buying a loan they take out. A fully private company probably would not invest its advertising and outreach resources in these ways.
- Fannie Mae currently has more than \$1.7 billion in commitments for underwriting experiments, and we are seeking to increase the number of underwriting experiments as well as the factors being tested. Our goal is to have a wide range of experiments covering all aspects of mortgage underwriting—for example, mortgage eligibility criteria, borrower ability and willingness to pay, property eligibility criteria, property valuation techniques and procedures. We pay particular attention to those areas that are most often cited as being impediments to homeownership—accumulating downpayment, establishing a credit history, and obtaining affordable mortgage financing. Experiments may be national, involving many lenders and including properties throughout the country; community-based, involving multiple lenders in a city, metropolitan area, or region; or lender-based.

Fannie Mae has an ongoing, comprehensive effort in place to evaluate the appropriateness of the underwriting standards we use. This assessment includes indepth research of mortgage performance to determine the relative importance of various underwriting factors, and frequent consul-

tation with lenders through national and regional underwriting advisory councils and with mortgage insurance companies. Over the past few years we have made more than 40 changes to our guidelines removing impediments that did not enhance credit quality and enabling lenders to apply appropriate discretion and judgment. To promote consistent application of our underwriting guidelines, we have issued new underwriting guidance booklets, expanded the training we offer to underwriters, established regional telephone hotlines for underwriting questions, and made our requirements available electronically through Guide Express. We recently announced the availability of Desktop Underwriter<sup>SM</sup>, an automated underwriting system that consistently applies our underwriting guidelines.

- We have underway a series of technology initiatives that will significantly improve the efficiency of the mortgage finance system overall. For the homebuyer this means lower cost—we estimate a \$1,000 savings in closing costs—and less delay in obtaining a mortgage. For the lender, it means a more streamlined process. A fully private company would have no incentive to develop the open systems that Fannie Mae is designing, nor to ensure that developed systems are accessible to lenders of all sizes.
- A core value of the corporation is to help eliminate discrimination in mortgage finance, and we are using our leadership role to advance fair lending and to make the elimination of discrimination the number one priority of all participants in the mortgage finance system. Fannie Mae has developed extensive tools that can help lenders identify their weaknesses, and a range of products and services to help lenders address them. Fannie Mae has also undertaken major efforts to bring potential homebuyers into the system by providing them information, counselling, and the overall tools and information they need to qualify for a mortgage.

These efforts include: an unprecedented outreach effort to reach aspiring homebuyers, especially minorities, to provide them the information resources they need to buy a home; comprehensive training for mortgage underwriters to ensure they understand and are able to fully utilize the flexibilities in our underwriting guides; underwriting experiments to test the limits of our current requirements and identify further changes or flexibilities that can be added; funding for new and existing community development financial institutions, and for prepurchase counselling programs; second reviews; and using technology to identify ways to lower the costs of originating low-balance loans. We also have a number of initiatives designed to increase participation of minorities and women in the industry.

The original “statement of work” called for the authors to provide an assessment of the impact of full privatization on “fair mortgage lending practices,” and the Wachter paper does list “reduction of redlining and racial discrimination in mortgage lending” as one of Fannie Mae’s and Freddie Mac’s “social goals.”<sup>19</sup> Regrettably, the paper provides no further mention of our work in this area, or analysis of the impact full privatization would have.

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<sup>19</sup> See the Wachter et al. paper, [p. 339].



### III. ALTERNATIVES TO RELIANCE ON FANNIE MAE AND FREDDIE MAC, INCREASING MANDATED HOUSING GOALS

After concluding that full privatization of Fannie Mae and Freddie Mac could have significant adverse effects, especially for low- and moderate-income families seeking to buy homes, the authors consider whether expanding direct federal housing subsidy programs could effectively offset these impacts. They determine that:

“... the existing federal programs to encourage home ownership and equal access in the mortgage markets are unlikely to fill the gap left by the reduced role of the GSEs in these areas....Simply put, the expertise, incentives, and resources available to the GSEs are sufficient to make them private, efficient, targeted welfare providers.”<sup>20</sup>

We agree that Fannie Mae and Freddie Mac represent highly efficient means of assuring access to mortgage financing.

Use of direct subsidies requires allocating finite support to a limited part of an identified beneficiary group. Inevitably it requires the development of infrastructure, allocation standards, approval mechanisms, monitoring, and administration. By contrast, the Fannie Mae/Freddie Mac mechanism in effect allows the extension of virtually unlimited financing, enhanced by the companies’ status, through a market-driven system that is highly competitive and cost conscious. The paper acknowledges that we provide benefits to homebuyers, which when linked to our community lending activities, extends the benefits further. The administrative overhead involved in this effort is minimal. It is driven by thousands of independently operating lenders, and is managed at the national level by a highly efficient workforce many times smaller than the structure HUD uses to achieve significantly less impact.

The authors determine it unlikely, under the present budgetary environment, that the government would replace our targeted activities with direct subsidies or expenditures if Fannie Mae and Freddie Mac were made fully private. Significantly too, they point out that even assuming expansion of existing programs or creation of new ones, “such programs would have costs and their success in compensating for losses in ownership is by no means assured in all cases.”<sup>21</sup> We agree; indeed, particularly when our contributions beyond those the authors review are considered, we believe it would be impossible to do so.

Once rejecting alternative approaches, the authors suggest that the benefits that Fannie Mae and Freddie Mac provide to low- and moderate-income families and those with special needs could be expanded by increasing the statutory housing goals to which we are subject. They also suggest adding new directives such as demonstration programs and expansion and acceleration of efforts already underway. The implication appears to be that the mechanism works now, therefore it can do

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<sup>20</sup> Ibid., [pp. 367, 368].

<sup>21</sup> Ibid., [pp. 353–54].



still more. While the authors point out that mission obligations cannot be piled on infinitely, without further analysis of the work we are now doing or our presumed capacity to absorb more obligations, the authors simply suggest we should be required to do more.<sup>22</sup>

However, FHEFSSA declined to establish credit allocation targets for Fannie Mae and Freddie Mac, and the legislative history made clear that the role of Fannie Mae and Freddie Mac is not to replace HUD programs.<sup>23</sup> The Act required HUD to establish goals that would set a minimum reasonable portion of each enterprise's business that should serve specific groups. The Act directed HUD to set the goals taking into account market conditions, reasonable economic return, and the enterprises' safety and soundness.

It should be noted that the Act already provides for HUD periodically to reassess our housing goals. The authors do not appear to recognize this consideration, nor indeed that such a reassessment is currently underway.

The Congress sought to preclude efforts to micromanage the enterprises, or impose upon them layered obligations and resultant creative constraints. The Congress specifically sought to calibrate a balance between public mission and private market demands. The draft paper declines to explain why existing goals are inadequate; why the scope and pace of current targeted activities including underwriting experiments should be increased; and how indeed they can be, without undermining the essence of what makes the enterprises work as effectively as the authors agree we do.

#### IV. CONCLUSION

Although at times the authors appear to strain to diminish the importance of some of their own figures assessing the impact of making us fully private, they affirm that Fannie Mae and Freddie Mac have contributed significantly to the housing finance market. The paper acknowledges that we serve a broad range of the housing market, including low- and moderate-income housing, and that we can be expected to continue to expand our special efforts in the future. In sharp contrast to federal subsidy programs, we have performed effectively and efficiently, and at no cost to the taxpayer. Were we to be made fully private, all segments of the market would feel the effect. Those

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<sup>22</sup> As noted previously, in citing the benefits we currently provide, the authors rely on data that are at least 1 year old, and therefore do not reflect current levels of activity. Our annual housing goals report to HUD provides more current data on Fannie Mae's service to low- and moderate-income families and communities in need. As reported, 45.8% of all housing units we financed in 1994 either served homebuyers with incomes at or below the area median, or financed rental dwellings affordable to such families—up from 35.6% in 1993. Approximately 31.5% of the dwellings we financed in 1994 were located in central cities—an increase from 26.3% in the prior year. Our service to minority homebuyers has also risen sharply—from 12.9% of loans in 1993, to 20.6% of loans in the final quarter of 1994. Overall, Fannie Mae exceeded each of our statutory housing goals in 1994, and we are committed to doing so in the future.

For a description of current underwriting activities, see *supra* pp. 390–391.

<sup>23</sup> S. Rep. No. 102–282, 102nd Congress, 2nd Sess. 29 (1992).

most severely hurt would be not those at the higher end of the market we serve, but the lower income, central cities, and minority households.

Such assertions are consistent with our view that our special status allows us to combine private market efficiencies with a public mission, to assert a vital leadership role in the world's most effective mortgage finance system.

But the review is just a piece of the analysis necessary. To provide a useful assessment of the impact of making us fully private, the analysis must consider equally our diverse, pervasive, and ongoing role in the market. We believe the authors' findings—that making us purely private would have serious adverse effects—would be magnified.



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